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THE OSTEOPATHIC LESION.

II.

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A Study in Pathology.

If osteopathy is of any considerable value it is because its fundamentals rest upon sound anatomic and physiologic knowledge. Of course the tremendous value and good of clinical experience to every osteopath can not in the least be gainsaid.

The object of this brief article is to supplement somewhat in detail the paper on the subject treated in the September, 1905, issue of the Journal.

HISTOLOGICAL.

It may be well, first, to have the reader refresh his memory on a few additional points of anatomy and physiology not recalled in the first paper but germane to a clearer understanding of osteopathic pathology. These pertain, in particular, to the dorsal spinal cord, the corresponding afferent and efferent neurones and the sympathetic.

Although "the entire nervous system may be considered as an enormous tangle, formed by the interlacing of an innumerable number of neurones whose complex fibre paths place all portions of the body in communication with all other portions"[1]; still much careful study of the Wallerian degeneration method and the staining methods of Golgi, together with the myelinization method, has brought out of apparent chaos most of our knowledge of the intricate fiber paths of the nervous system.

Briefly, the principal tracts are as follows[2]:

Motor Paths: 1. The anterior pyramidal tracts, from the ganglion cells of the anterior horns of the same or opposite side. 2. The lateral pyramidal tracts, from the opposite hemisphere of the cerebrum to the motor ganglion cells of the anterior horns of the same side.

Sensory Paths: 1. The posterior tracts, made up of fibers from the posterior spinal ganglia which enter the cord through the posterior nerve roots and form the columns of Goll and Burdach, which extend upward, to terminal nuclei. From the ganglion cells of the terminal nuclei a second series of tracts arise and extend to the cortex of the cerebrum. A second group of sensory fibers enter the cord through the posterior nerve roots.

These do not extend upward in the posterior column, but join the columns of Clarke, on the same level at which they enter. 2. From these last-named fibers are derived the lateral cerebellar tracts, composed of sensory fibers which extend upward to the cerebellum, crossing the crura cerebelli. From here a series of systems of nerve fibers connect with the cortex of the cerebellum.

A point that should not be overlooked as it aids us materially in understanding the pathology of osteopathic lesions is that there are not only neurones of the first order, for example, the peripheral sensory neurones entering as dorsal root fibers in the spinal cord, and the peripheral neurones of the cranial nerves, but, also, in contiguity with these there are neurones of the second order, or third order, or even higher. This is true of the spinal, cranial, and sympathetic nerves and their connections with and in the brain and cord.

Then in addition to the above tracts and nerve paths made up of efferent and afferent neurones of various orders, there are the so-called association paths. These are comprised of motor and sensory paths connecting the nuclei of various levels. They may be of either ascending or descending degeneration, although a number are called mixed fiber tracts, as they contain both ascending and descending fibers.

A few anatomical facts relative to the sympathetics should be given special emphasis:[3] The rami communicantes are, largely, fibers from the spinal cord, via spinal roots or cerebro-spinal nerves, which pass into the prevertebral ganglia. There are, also, fibers, in the rami communicantes which pass from the ganglia, sympathetic, into the cerebro-spinal nerves and accompany these toward the periphery. Again, the sympathetic nervous system consists "of peripheral branches which leave the ganglion chain at all heights, passing to the blood vessels, abdominal organs, glands, etc. These peripheral branches anastomose with branches of the cerebro-spinal nerves to form the sympathetic plexus, in which, again, peripheral ganglia are found at various places."

"The sympathetic system sends branches to all parts of the body where unstriated muscular tissue is present, especially to the muscles of the blood vessels, stomach, intestines, bronchi, lungs, urethra, bladder, and uterus."

"Medullated fibers from the rami communicantes may be found in the sympathetic. The cells of the sympathetic ganglia are generally multipolar, possess an axis-cylinder process and numerous dendrites.

"The fibers coming from the spinal cord—that is, most of the rami communicantes—enter the sympathetic ganglia as precellular fibers (Kolliker) to surround the cells of these ganglia with their end brushes. Here ends the neurone of the first order. The ganglion cells send out postcellular fibers which pass the periphery and branch in the unstriated muscular tissues, etc. They form with the original cells the neurone of the second order.

"Some of the precellular fibers run directly to the peripheral ganglia of the sympathetic reticuli (Langley). This is also true of the splanchnici."

It is said that nerve fibers from the sympathetic ganglia also enter the spinal ganglia and form pericellular arborizations about the cells of the second type. And "The ganglionic cell group is eccentrically placed as regards the axis of the nerve trunk, some funiculi apparently passing the ganglion without being in any way connected with its nerve cells."

The principal difference between the sympathetic and cerebro-spinal ganglia is that the former have a larger number of non-medullated nerve fibers while in the latter the medullated constitute the greater number. There is an interchange of a few of the two types between the above ganglia by way of the rami communicantes.

It should be noted that, although we have what are called neurones of the first and second order, or projection and intermediary cells, and which are classed as centrifugal, centripetal, and association neurones, Apathy and Bethe have shown that an important element of nervous tissue, the neuro-fibrillæ, traverse "the nerve fibers as well as the ganglionic cells, their substance as well as their process, without there being any appreciable difference between process and dendrites."[3] This would indicate that the neurone as a histological unit did not exist, that these neuro-fibrillæ connect, continuously the entire nervous system; but this has not been proven for the higher animals. The relation of one neurone to another" is, as a rule, one of contiguity rather than of anatomical continuity."[1]

There are several ways in which this contiguous relationship of the neurones occur. It is by the end-brushes or terminal aborization (it is supposed the end-brushes are formed by the rapid separation of the fiber into its component fibrillæ interlacing with:

a. The end-brushes of neuraxes to other neurones,
b. The end-brushes of collaterals of other neurones,
c. The dendrites of other neurones, or
d. The terminal aborization may surround, basket-like, the cell body of other neurones.[1])

We will conclude these few notes on the anatomy by some reference to the lymphatic and blood supply.

The dura mater blood supply is not extensive, but relatively is richly supplied with lymphatics. These lymphatics "open into the subdural and epidural spaces and are continuous with the perivascular and perineural lymphatics which leave the cerebro-spinal cavities in company with the cranial and spinal nerves and the larger blood vessels."[1] In a word, the lymph of the epidural space is continuous with the perivascular and perineural lymphatics and through them with the lymphatic vessels of the general systemic circulation; and the lymph of the subdural space is continuous with the lymphatic vessels of the dura, and through them with the epidural spaces and systemic circulation.

The cranial and spinal nerves upon their exit receive a covering of the three meningeal layers, which soon fuse together and blend with the epineurium of the nerve trunks. Fluid injected into the subdural space is readily forced into the lymphatics of the epineural and perineural sheaths.[1] This last point should not be confounded by thinking the subdural lymph is cerebro-spinal fluid. The latter fluid is in the anarchnoid space and is of a different chemical composition from lymph. It has been shown by experiment[4] that the cerebro-spinal fluid can not be forced along the nerve courses except in the fœtus and in certain pathological conditions. (This, however, is contrary to the teachings of Halliburton, Foster, and others.)

The pia mater is the typical vascular membrane. There are many lymphatics and blood vessels between its two layers. The pial septa are throughout the connective tissue to all parts of the brain and cord and supports the

many blood vessels and perivascular lymphatics. The pia mater extends fibrous sheaths to the larger vessels, while neuroglia surrounds the smaller vessels and capillaries. The larger veins anastomose freely. The arteries are all terminal arteries.

The blood vessels and lymphatics of the ganglia are similar to those of the nerve trunks. The nerve cells of all ganglia are surrounded by a peculiar connective tissue capsule which forms a "complete investment for the nerve cell and are continued on to its processes, possibly becoming continuous with the neurilemma. The capsule is not, as a rule, applied to the cell, but leaves a narrow interval which is occupied by lymph or 'tissue juice'."[1] Then it has been demonstrated that within the cytoplasm of the nerve cell there are minute canaliculi which form an intracellular network, more abundant near the surface of the cell and which have been termed juice canaliculi (Holmgren).

The nerve trunks are, also, well supplied with blood vessels. The larger ones are in the epineurium, while fair-sized branches enter the septa to supply the funiculi. Then arteries and veins are found in the endoneurium, and which vessels are meshes of the finer endoneurium are, thus, in contact with the nerve fibers.

A final point as to the histology we desire to refer to is the neuroglia cells and fibers. These are found in both the grey and white matter. "The fibers radiate for considerable distances from their glia cells, and thus form a supporting tissue for the nerve elements. They are frequently in intimate relation with the blood vessels, on the walls of which many of the glia fibers, particularly the thicker or mossy cell variety, terminate in expanded plates, which, in some parts, form an almost complete outer membranous coat of the vessel."[1] (See article in September, 1905, Journal; also, Sajous[5]).

PHYSIOLOGICAL.

That "physiology teaches that motor, vasomotor, and secretory (and trophic?) impulses pass from the centers of the spinal cord and oblongata by means of the rami communicantes to reach the cells of the sympathetic ganglia, and from here the impulses pass to the second neurone, which transmits them to the periphery" every student knows. The sympathetics have a preponderating influence and control over the nutrition of the body. A few words as to the functions of the vasomotor nerves in particular will add a necessary link to the clear understanding of this outline of osteopathic pathology.

We are well aware that when conditions are normal the vasomotor center is in a state of moderate tonic contraction. The dominating center in the medulla oblongata as well as the various subsidiary centers throughout the spinal cord is subject to direct and reflex stimulation. The amount of gases contained in the blood circulating about the center and the state of the blood pressure have much to do with the state of excitation of these nerves.

When irritation of the center occurs there is contraction of all of the arteries with a consequent increase in arterial blood pressure, followed by a distension of the veins and the heart. In paralysis of the center there is a relaxation and dilation of the arteries, followed by reduction of the blood pressure. When subsidiary centers and fiber tracts are involved there are corresponding local disturbances.

The vasomotor nerves supplying the viscera, the splanchnic, are the most important; and as this paper is confined to the pathology of the viscera and the dorsal nervous areas most of our illustrations will pertain to this section. These nerves are made up in part of medullated fibers and in part of non-medullated fibers, and in their course to the muscular coats of the vessels they are also partly mixed with ganglion cells. Those that do not pass to their distribution by way of the cranial nerves descend in the lateral column of the spinal cord to their subsidiary centers; and from here outward through the anterior roots of the spinal nerves into the visceral strands of the sympathetic ganglia.

It should be remembered that the vaso-constrictors are fibers which increase the tonicity of the vessels by causing contraction, while the vaso-dilators are fibers which inhibit the stimulus given to the vascular muscles. It is through control of the tonus of the small arteries and anterioles that the vaso-constrictors govern blood pressure, increasing or decreasing terminal resistance. The vaso-dilators by suspending the action of the vaso-constrictors control local blood supply, allowing the blood-vessels to dilate.

The vaso-constrictor center may be stimulated directly as follows: (a) An excess of carbon dioxide in the blood; (b) sudden anemia; (c) venous hyperaemia; (d) poisons, and reflexly; (a) through "pressor" afferent nerve fibers; (b) through "depressor" efferent nerve fibers.

The vaso-dilators parallel in a general way the vaso-constrictors; in the same strand with vaso-constrictor, motor, and sensory fibers, or separately. "All vaso-motor fibers are efferent; the afferent members of the reflex circuit is represented in part by the blood supply of the center in the case of the vaso-constrictor center. This condition is possible in that case because the influence of the vaso-constrictor system is for the most part general, but the local action of the vaso-dilator system makes direct stimulation of the vaso-dilator center practically impossible. As no afferent vaso-dilator fibers have been found, it is probable that the afferent member of the circuit is represented by the sensory nerve coming from any given locality."[7]

Hence through the vasomotor fibers and the cardiac augmentor and inhibitory fibers (although in this article we have not specifically spoken of the cardiac control) we should remember that an adaptative co-ordination of the activities of the circulatory organs is necessary for perfect health. The regulation of temperature, of secretion and excretion, of supply of food and oxygen to working organs of general blood pressure, of local blood flow are thus accomplished. A lesion to the medulla center, to some subsidiary spinal cord center, to some sympathetic center, as well as some cardiac innervation disturbance may be the inception of a disordered circulatory activity where there is neither perfect co-ordination in time nor a controlled force.

It is stated[10] that irritation of sensory nerves, particularly if intense and long continued, causes dilation of the vessels in the areas innervated by them; and, also, irritation of the muscle nerves by pressure has a depressant effect. A few state that all sensory nerves contain both pressor and depressor fibers.

Here we wish to call the reader's attention to two excellent papers[8,9] written by osteopaths who are doing experimental laboratory research work. These experiments were performed upon fifty or more dogs, cats, and rabbits. In connection with this article we will refer to only one or two points.

Stimulation (mechanical) in the mid- and lower dorsal regions irritates and increases peristalic action and vaso-constriction in the stomach and intestines. Inhibition produces the opposite results, relaxes the muscles both of stomach and intestines, decreases peristalsis, and causes dilation of the blood vessels.

These experiments are of the greatest value to us, physiologically, by giving a clue in explaining osteopathic etiology and pathology, and thus making our therapeutics more practical and specific. We should not, however, overrate the relative values of stimulatory and inhibitory treatment as compared with the readjustment treatment. Not but what the former is of considerable practical importance, but here I wish to emphasize the fact that it really gives us a wide scientific demonstration of the pathological effects on a physiological plane of various osteopathic lesions.

Landois informs us that the veins are controlled by the vaso-motor nerves. That on the whole, the venomotors pursue the same course as the arteriomotors and the sweat fibers. As to the dependence of the lymphatics upon the nerves, irritation of the peripheral extremity of the splanchnic nerve the receptacle for the chyle generally dilated. Irritation of other sympathetic fibers caused contraction of the thoracic duct and receptacle; and, the irritation of the thoracic cord of the sympathetic is followed by dilation or contraction of the thoracic duct.

We will not consider here, specially, other motor fibers, other than the vasomotor, nor the remaining centrifugal nerves, secretory and inhibitory, with the exception of just a word as to the trophic. Anatomically and physiologically certain of these trophic fibers are known to exist; but as to their end organ nothing is known. Trophic disorders may accompany affections of the vasomotor nerves as well of trophic fibers direct as shown by the following:

"Paralysis of the vasomotors gives rise in addition to vascular dilation and local increase in the blood pressure, also to increased transudation from the capillaries. In consequence of the loss of the muscular activity in the vessels the blood stream becomes slowed and stagnates; as a result, the capillaries are dilated and the slowly moving blood in them becomes markedly venous, so that the skin acquires a livid color. Further, normal transpiration is interfered with, so that dryness of the epidermis results, and often also desquamation and fissuration. Passive hypermia, a tendency to occlusion of the capillaries and to the formation of thrombi in the veins, together with the passive transudates and edematous swelling, are not rare, also the normal growth of the hair and the nails is readily interfered with, the skin exhibits increased vulnerability and the nutrition of all of the remaining tissues may suffer. In consequence of long-continued irritation of vasomotor nerves the amount of blood passing through the affected vessels becomes diminished, and it may be conceived that, as a result, nutritive disturbances occur in the parts to be supplied. Tangl found on long-continued faradic stimulation of the spinal cord a reduction in oxidating processes in the tissues, as a result of which gaseous interchange, and finally also the bodily temperature, fall markedly."[10]

Apropos of the above, and of our work in particular, although it should, strictly, come under the pathological section the following from Landois relative to pathological disturbance of the vasomotors is of great interest to

the osteopath. He says that the appearance of sudden hyperemia, with transudation and ecchymoses in individual thoracic or abdominal viscera must likewise be referred to an angio-neurotic origin. That certain observers have noted hyperemia and extravasations of blood in the lungs, the pleuræ, the intestines and the kidneys, after injury of the pons, the striate body and the optic thalamus. Also injury to the lumbar cord has caused extravasations of blood into the capsules of the kidneys; and that intermediation of the nerves relaxed the pulmonary vessels, inducing attacks of asthma.

In addition to the above it is known that irritation to the splanchnic sympathetic causes disturbances with the intestinal gland secretion, with the mucous membrane, and, in a word, to all the cellular tissues.

PATHOLOGICAL.

It is refreshing to study Oppenheim's[3] pregnant article on the traumatic neuroses. Under pathologic anatomy the following is significant: "Schmaus has shown that shocks to the spinal cord which are not combined with gross anatomic lesions may produce death of the nerve fiber or swelling and degeneration of the axis cylinder, medullary distintegration, etc. Bickeles has also shown that blows on the head of an animal can produce a medullary degeneration of the nerve fibers of the medulla and cord, which are only recognizable by Marchi's method. Such observations show the necessity of caution in one's decisions; they may be particularly adapted to throw a light upon those phenomena which are not psychogenic. Later investigators also (Vilbert, Knapp, Crocq, and others) have been inclined to favor the presence of minute material alterations."

The various traumatic or accident injuries to the nervous system have been termed neurosis, because a pathological basis to these disorders has not yet been found. The assumption, as Oppenheim says, is that functional disorders indicate molecular alterations. The only research, he says, has "only been a few autopsies, but these were generally negative"; and Dana[11] tells us the autopsies held by Pell, Oppenheim, and others were in cases of traumatic neurasthenia only. "A few observations, however, have shown that shocks which did not produce a direct lesion of the central nervous system caused a disease of the cerebral vessels, especially the capillaries, even arteriosclerosis, hyaline degeneration, and endarteritis obliterons; and it is not improbable that some of the symptoms, as, for instance the persistent headache, attacks of vertigo, and vasomotor disorders, are due in some cases to these alterations (Kronthal, Friedman, Koppen), though I consider it more probable that these changes are only results of the repeated vasomotor disturbances," says Oppenheim. And further this writer expresses himself that he believes the traumatic neuroses are the result of both psychic and physical shock; and that molecular alterations upon the cerebrum are produced by disturbing the psychic, motor, and sensory functions and those of the special senses. Still he emphasizes that "finer material lesions (upon the walls of the blood vessels, degeneration of the medulla of some fibers, etc.), are present, and form the basis of some phenomena." (See, especially Mickle and Clevenger in our former article).

The osteopathic lesion is an anatomic lesion and there is considerable scope between physical shock lesion on the lesser or molecular side and clear-

cut osteopathic and definite traumatic lesions on the other. The shading of one into the other undoubtedly presents many degrees of pathologic alterations, but in all there are definite structural alterations from molecular and fine capillary changes to macroscopic changes; and probably in time many of them can be demonstrated through the medium of the microscope. The osteopathic sense of touch discovers various very tangible lesions, the results of many of these lesions being functional and not organic changes; still a continuance of these osteopathic or anatomic lesions shades into various demonstrable pathological lesions.

Many writers continually strive to explain that traumatic neuroses, traumatic hysteria, etc., is so largely dependent upon psychic effects, auto-suggestion, and such involvement of cerebrum or periphery as to evoke only cerebral molecular alterations. This probably presents one phase of the question, but as osteopaths we should note that in all of the medical study the structural, the anatomic body, is not investigated from the mechanical, the osteopathic side. Osteopathy premises that the body is a vital and physical mechanism subject to derangements, structural alterations, and functional changes, as results of violence on the mechanical plane, as well as disturbances on the psychic and biochemic planes. Here we are particularly interested in the mechanical viewpoint.

Virchow in his essay on "Specificker and Specifickes" said, "One may pay ever so great attention to anatomical, morphological, and histological study; one may spend further time in the research of indispensable and requisite fundamental principles of knowledge; but should one on that account declare that they are the only sure methods, that they alone are to be followed, that they alone are authoritative? Many important phenomena of the human body are purely functional, and although one may seek to explain them by a mechanical hypothesis as occurring through fine material, molecular changes, yet one must never forget that they can never be considered from an anatomical standpoint." Our technically osteopathic etiology and diagnosis is anatomical; indeed, the anatomical condition is the basis of all diagnosis, still it should be complemented by the functional or physiological. The anatomical is definite; it deals with types; there are certain organic changes. From the functional side, we must consider the individual; there are no general outlines. Every physician knows that all physiological knowledge has been obtained through material laboratory research; all medical science is based upon material, laboratory work. Osteopathic etiology and diagnosis predicates an anatomical therapeutics and *a priori* an anatomical pathology.

If there is not a demonstrable osteopathic pathology the entire fabric is nothing but a mere fancy or at best an incidental phase to medical therapeutics, or in other words our treatments are only a physiological part, explanatory on the grounds of mere stimulation and suggestion. A study of the physiological in contradistinction to the anatomical as Virchow has pointed out is well. No one will question the importance of the functional side, and is, as Rosenbach would say, where largely the predisposition of the individual comes in. But a demonstration of osteopathy on anatomical, morphological, and histological grounds through the medium of pathology forms the only nucleus, the hope, of an appeal of our system, as a demonstrated fact, to the world of science. Like all previous physiological and

most scientific medical knowledge this avenue lies through the research laboratory.

Now, how can an osteopathic vertebral or rib lesion, for examples, so disturb a viscus to the point of actual organic change? Is it probable that an organ can be distantly affected by a subluxated rib, pressing or irritating a nerve fiber tract? Then, can referred injuries be actual and potent injuries?

It is well known that destruction of the areas from which nerve fibers originate or forcible interruption of the nerve evokes degeneration of the nerve tract, whether they are efferent or afferent fibers. This is true whether it is a motor area of the cerebrum or any point of the motor tract downward, the basal ganglia, the medulla, or cord that is destroyed; or whether it is a sensory tract that is interrupted in its course from periphery to center. Thus, injuries to the neurone of the first order of the sympathetic from ganglionary or ramal interruptions are just as real and potent and far reaching as injuries to Golgi cells of the first type whose function is to connect distant parts or the second cell types of Golgi that serve to place neighboring neurones in close physiological relation.

Explanatory of this Adami gives us valuable information on the part played by the nervous system in causing referred inflammation and other pathological changes in his well known essay[12] on "Inflammation." As inflammation is the dominating process in disease we feel that any facts bearing upon this process are particularly cogent. All have probably seen Adami's definition of inflammation—"The series of changes constituting the local manifestation of the attempt at repair of actual or referred injury to a part, or, briefly, as the local attempt at repair of actual or referred injury." He tells us that "centrifugal impulses alone, apart from any local injury, may originate a succession of phenomena of inflammation in a part"; and " in all probability a nervous and central origin must be ascribed to some, at least, of the sympathetic inflammations seen to occur in areas supplied by the other branches of a nerve supplying a part primarily inflamed; and again in areas supplied from the same region of the brain or cord as the inflamed organ." Other inflammatory changes, of course, may occur independently of centrifugal nervous influences, and the vessels may react independently of central influences.

There is no doubt but that the central nervous system is capable of modifying the process of inflammation. Adami informs us "it would appear that when the vaso-dilators alone are called into action the successive stages of the process are accelerated. When the vaso-constrictors alone are acting the process is retarded."

Not only may centrifugal impulses originate an inflamation in a previous healthy and uninjured tissue but is it important to note that in inflammation affecting a viscus an "inflammatory phenomena may be sympathetically developed in regions innervated from the same area in the brain or spinal cord."

Space does not permit us to detail the various examples and animal experiments that have led up to these conclusions, although it is of interest to add that from the factors that have afforded a great probability that inflammatory changes can originate directly from the nervous system the "clearest

proof" has arisen through experimental hypnotic suggestion. (See Adami, p. 112).

The classicl symptoms, which every one is familiar with, are frequently but the beginning of extension of inflammatory processes and of generalized disease. We know that congestion of the vessels cause the redness, that exudation of fluid and corpuscles from these vessels cause swelling, that the local increased amount of blood causes heat, that irritation of the nerve terminals causes pain, and that through the abnormal condition wrought by the above changes there is functional disturbances. Under certain situations some of the above symptoms may appear wanting but we are assured that a minute examination of the tissue will reveal the above succession of changes in every instance.

From the above pathological changes there may occur many changes dependent upon either regeneration or degeneration, the character of tissue involved, and the extension of the disease into a more severe type or into a general disease. The exudation of fluid, diapedesis, catarrhal and parenchymatous inflammations, necrosis, suppurative processes, etc., hypertrophy and hyperplasia and various other changes present a long list of disturbances that may arise from the predominating factor of disease termed inflammation.

In the case of osteopathic lesions, physical injuries, it is well known that the inflammation is due to the damage inflicted upon the cells of the tissues; and these damages may be referred directly or reflexly by the way of nerve fibers. The nerve fibers of special interest to us in this study are the vasomotors and the trophic, for they control nutrition. And if it can be proved that vertebral and rib lesions, for example, can so affect these nerves and lead to passive congestion, diapedesis, inflammatory exudates, and various degenerations of visceral tissue a new and wide field of pathology is opened up. As to the experimental evidence that may be offered to establish proof of the validity and import of the osteopathic lesion we reserve for the next section on experiments. It is true careful and pains-taking post-mortems upon the human body, from the osteopathic viewpoint will be invaluable evidence; but this problem can not entirely, nor probably in the main, be approached from the side of the autopsy alone, for a full study must necessarily include many finer shades of physiological changes, a careful review of the various tracts involved, the exact character of both the anatomical and pathological changes produced, and the many symptoms, signs, and chemical changes evolved can be determined in their totality, only, from the biochemic and physiological sides in conjunction with the resultant pathological, and not from the anatomical and pathological alone.

Whether an irritant is physical, bacterial, or chemical no satisfactory distinction can be founded on the duration of the irritation. Even suppuration can be produced by chemical irritants, so pyogenetic property is not necessarily confined to micro-organisms. But what is of great moment to us is to know that a local irritation of the nervous system may lead, apart from "direct reflex action, to changes of nervous origin, in the region of injury and in the reflexes affecting associated regions, the higher centers; and through them the system at large, may become affected by paths that it is not always easy to trace." (A chapter of intense interest that should be developed in the osteopathic experimental laboratory is the effects of me-

chanical injury, anatomical lesions, upon the blood. Leucocytosis, apoplasmia, blood inspissation, and the chemical break-down of lecithin as found in the presence of choline in the blood are a few of the changes that have been noted following inflammation and nerve degeneration).

Thus in osteopathic pathology the chapter of greatest interest lies in the effect of the lesion upon the controlling and governing tissues, the nerves, of the body. It is through these tissues that many diseases become extensive and general, i.e., prolonged involvement of these tissues is a necessary link in the pathological chain, although, of course, metastasis, for example, a resultant, is by way of vascular channels. The lesion may be directly to blood vessel or lymph channel but one of the immediate disturbances is to neurone integrity, and an important medium of extension should the disorder become general in effect is the nerve tract. It should be understood that we are not attempting to offer an explanation for the etiology of all diseases, nor even an explanation or pathology for all diseases of osteopathic origin; we are limiting ourselves for the present to those disturbances of the nervous system as explained in the introduction to our former article.

A final point of interest that we will mention here is that experimental evidence[8-9-12] indicates that uncontrolled action of the sympathetics after injury or section of the vaso-dilators "hinders or prevents the manifestation of the ordinary processes of inflammation, and by preventing the destruction or removal of irritant matter favors necrosis of the tissues." And section of all nerves to a certain tissue "permits the inflammatory process to run a more rapid course; section of the sympathetics (vaso-constrictors) alone has the same effect." We should continually remember that inflammation is a reparative process and repair is dependent upon favorable and unfavorable conditions. Frequently the reaction is disproportionate to the strength of the irritant. In addition to the above direct effects of vasomotor, or possibly trophic fibers, following injury to them we have to consider that this master tissue is dependent upon efficient supply and quality of blood, for if these are lacking nutritive derangement or cell-degradation and death will follow. "Mechanical injury (to vessels) produces death of the tissue by inducing blood stasis, and by its direct effect upon the tissue elements"; so if the injury is severe enough tissue necrosis causes complete arrest of the part; "but those remoter causes which consist in the weak defense of the organism against injury, although subsidiary, are quite as important."[13] Consequently, we have continually emphasized the importance of the anatomy and physiology of the nervous system from the standpoints of neurones of the various orders, primary, secondary, etc., or dependent, and collaterals, that certain neurones are dependent upon others for their stimuli; and, also, the importance of extensive blood and lymph supply to cell, and nerve fiber. Hence, two main factors of impaired nutrition of tissues are:

1. "Absence or recession of the normal physiological stimulus."
2. "Deficiency in the quality or quantity of the blood and lymph supply."[13]

(The third important factor is inherent defect of the cell elements to nourish themselves, therefore premature decay).

EXPERIMENTAL.

Although it is stated upon high authoritative evidence, and from the expe-

rimental viewpoint, that local physical injury is an important and potent cause of nervous and vascular disorder, and that following these physical injuries both direct and referred disorders, of much moment, may arise, it remains to be proved whether the field is an extensive one. This, then, brings us to an experimental field; a field that is postulated thus:

1. That the body follows definite structural relations and is influenced by mechanical arrangements in its morphology.
2. That the integrity of tissue depends upon structural freedom of nutritive courses.
3. That the above predicates a structural etiology as exact and precise as structural relations are important to nutrition.

The *modus operandi* of the experiments we are conducting is as follows:

Healthy dogs are selected. A chemical analysis of the stomach contents is made first. Then the experimental osteopathic lesion is produced; this is done under anesthesia in order to thoroughly relax the tissues, prevent injury to the animal, and to facilitate the experiments generally. It requires very little force to sub-dislocate a rib or vertebra if done intelligently with due regard to the mechanics of the tissues operated upon. We produce no laceration of ligamentous or of muscular tissues, although, undoubtedly, the direct effect of the lesion is due to blood stasis from compressed and ruptured capillaries or from nerve impingment e.g. contraction of spinal muscles upon afferent fibers, and from this the efferent and afferent neurones are nutritionally or functionally involved. But the dogs are not mutilated, and, of course, in our autopsy work the dogs are immediately and quickly killed under anesthesia. Every few days chemical analyses of the stomach contents are made.

These anatomic lesions are purposely made in certain directions (see first article) in order to impinge upon the sympathetic fibers or the spinal nerve, although most probably any lesion would impinge or iritate, if not by direct pressure, by traction.

The post-mortems (a great advantage is gained by immediate study and preservation of fresh tissues, that can not be attained in dead house autopsies) reveal petechial, ecchymotic, and inflamed areas. macroscopically, in he nerve tissues contiguous and corresponding to the lesion. And the corresponding skeletal muscles are much contracted. Some of the ecchymotic, haemorrhagic, and congested spots may be artefacts, but certainly a nerve fiber inflamed for two or three inches is not an artefact, and, furthermore, the pathological findings, microscopical, in stomach and meninges of cord are not artefacts. Here hæmorrhages are mostly by diapedsis, not by rhexis; neither are these pathological changes of a chronic character, for the degenerations are of an acute perenchymatous type (thus barring perious disease): and furthermore these degenerations were not caused by anesthesia. In all instances results were definite and not misleading.

Figure VII, former article, as revealed by the microscope exhibits an extreme passive congestion, so marked that the blood is congested in both vein and artery. Here is hemorrhage, by diapedesis, into submucosa and muscularis, which indicates atony of the vessels, extravasation of fluid and early degeneration of the vessel walls. This condition, as well as others, being of such an acute character excludes possible previous disease. An interesting

pathological picture is presented to the student of which the further study of local detail pathology does not vitally concern our general outline.

This is referred injury from traumatic damage caused by the third and fourth right ribs being sub-dislocated upward at their vertebral ends. It is evident the physical injury involved the sympathetic neurones. The vessels became dilated through vasomotor paralysis, and congestion, extravasation, and hemorrhage resulted. In this case there was decided motor involvement of the stomach for it was stretched, thinned and full of dry undigested food, which, also, shows paralysis of secretory nerve fibers.

Figure VIII exhibits an acute parenchymatous degeneration with beginning atrophy especially noted at the free margins of the glands. This is a condition frequently seen upon microscopic post-mortems of the human stomach. This clearly depicts a change easily dependent upon serious affection of the vasomotor nerves or of the trophic nerves. It shows, of course, a nutritional derangement, a referred one, and productive of grave possibilities. This is a degeneration that has resulted in a disturbed function of the cells and has so long continued that the cells have died; in fact, the dead material as seen under the microscope is being cast off from the free surface. It is due to both a structural and chemical change in the protoplasm of the cell or fiber, the tissues become swollen and indistinct in outline and structure.

In these cases the microscope shows intracellular congestion of the nerve fibers with degenerative effects; and the blood vessels of the meninges of the spinal cord passive congestion in some, and in others, additionally, extravasation of leucocytes, and inflammatory exudate. These changes, also, are vaso-motor ones. Still, some of them are effects of direct pressure on nerve fiber between cell and periphery, or reflex by way of sensory irritation.

Golgi has shown that the protoplasmic processes of the neurone serve a nutritive function by absorbing the necessary products from the lymph space in which they lie. We have already noted how richly supplied with lymph the neurone is, from the "tissue juice" of the cells to the lymph spaces of the funiculi and of brain and cord. There is an alteration in the number and complexity of the protoplasmic processes and the neurone reverts to the embryonic character and type, followed by degeneration beginning in its terminals and collaterals, when the cell undergoes degeneration. So in all likelihood when nutrition is impaired the most remote parts of the cell are the first to suffer. This opens a broad vista to us when we appreciate that a lesion to a primary neurone may result in functional or organic change in dependent secondary neurones and neurones of higher orders, to collateral neurones, and to association neurones, and to any or all neurones dependent upon a primary or others for their impulses, function and stimulation. Cohnheim states, "Nor is it all important whether the failure of a muscle to contract or of a gland to secrete be caused by defective innevration or by occlusion of its duct." The abeyance of functions may be a cause of disorder. Tissues require a physiological stimulus in order that their nutrition may be up to the normal; so instead there may be poor functioning without actual degeneration of all the neurones. Owing to the ramifications and interlacing of all parts of the body with each other, it is not surprising that extensive and generalized disease

may readily result from some local injury to motor, vasomotor, trophic or secretory fiber, or to some association tract, in addition to the extension of disease from other causes.

Verily, the potency of an osteopathic lesion comes to the simple point as to whether or not it may be severe enough to cause sufficient local damage to make it an etiological factor. To the student, for the various details of this outline we refer to the texts; we are attempting to follow out a general logical outline only.

It should not be understood that we are entirely wedded to the idea that the osteopathic lesion must necessarily be an osseous lesion, that pressure from bone upon nerve fiber or vascular channel is the all-essential. Undoubtedly, a muscular or membraneous lesion can be an important factor of etiology; this is well illustrated, clinically, by a contracted muscle impinging afferent nerve fibers and thus disturbing the functional equilibrium of the spinal segment. Also, a prolapsed or strained viscus, or an organ dietetically or chemically injured, or abused, can exert a tremendous reflex disturbance upon spinal nerves and centers and even cause extreme contraction of spinal muscles. These facts, in this paper, are taken for granted; they exhibit the therapeutical value of stimulation and inhibition. Here we are concerning ourselves with the wider, more important and characteristically osteopathic field of definite and specific anatomical derangements of which the osseous forms the basis and is an easily demonstrable type, covering a wide and divergent scope. (A point of interest and an observation given for what it is worth, is: We have found in at least most of our experiments that ecchymosis and inflammation apparently was originated at the point of greatest pressure or impingement, or traction of the rib or vertebra upon the nerve tract. This refers to the spinal nerve at its exit and the sympathetic, not the efferent fibers supplying back muscles.) The spinal curvatures, the stiff spines, the straight spines, etc., also, can not help but have their focal points causing disturbance of nervous equilibrium, of circulation, and of consequent pathological inceptions. The more we study nervous architecture and physiological compensation the more comprehensive will our osteopathic philosophy be. (And, by the way, an important work to be done is the development of the mechanical phase of the osteopathic lesion—the mechano-anatomical, through laboratory work.)

Hyperæmia and anæmia play an important role as resultants of osteopathic lesions. It is difficult, and, unless these circulatory changes have been prolonged, impossible to detect them upon post-mortem. These changes, hyperæmia and anæmia, bridge an important pathological section between functional and organic disorders. Prolonged hyperæmia is usually exhibited by the tissues looking redder after death, and the tissues are apt to be edematous. An extension of vessels with blood may be noted on microscopic examination, or the vessels may appear normal. Still prolonged hyperæmia generally leads to hemorrhage, transudation, pigmentation and hyperplasia, or through pressure to atrophy, and sometimes death, of the tissue. Anemia may show the characteristic paleness, and when long continued the microscopic changes are atrophy, fatty degeneration, and even tissue death. It is worthy of emphasis, again, that these changes are not necessarily confined in the immediate vicinity or in contiguity, only, of the physical lesion, but they may be referred injuries, as well, to a distant

tissue or viscus; and there is not necessarily any characteristic line of demarcation, as to nature, between physical, chemical and bacteriologic noxæ, it is the prolongation of the action of the irritant that is a huge factor in the severity and extension of disease. The extent of cell involvement and destruction is of final importance, not the inceptional importance, whe na summary (not etiological) of damage done is made. The blood vessels and their nerve control can not be otherwise than significant in the pathology, for through these nutrition to a large extent is controlled, although other channels, the lymphatics, and other nerves, the secretory and trophic, are necessarily of great significance. We are told by physiologists that the important physiological and pathological points to be developed are relative to protoplasmic motion and semi-permeability,[14] and metabolism; but in our work suffice it (at present) to be demonstrated beyond doubt that the upsetting of cell equilibrium and even cell death can and does arise from the osteopathic lesion.

The pathology and pathologic anatomy of the sympathetic are still largely unknown, although a number of observers have found positive lesions. That there is a pathology no one will doubt, but we should remember the sympathetic is not so independent as a number may think. The sympathetic controls, to a large extent, vegetative life, still there must be a close interdependence of the cerebro-spinal and sympathetic nerves, as revealed by embryology and histology. Onuf[15] does not agree altogether with Kolliker (see Anatomical Section) that most of the afferent (sensory) fibers of the sympathetic originate from cells of the spinal ganglia. He claims the cells of origin are within the ganglia or plexuses of the sympathetic system. The larger number of the afferent fibers terminate in Clarke's column. The efferent fibers of the sympathetic arise from certain cell groups of the spinal cord (see Onuf). We make just mere mention of the angioneuroses and the trophoneuroses, diseases of the sympathetic nervous system, that there is a pathology of the sympathetic (see Oppenheim). In these diseases there predominates two principal groups of symptoms dependent upon paralysis and upon irritation of the nerves. There may be a combination of irritative symptoms with paralytic ones, for contraction of blood vessels may occur in lesions which cause only a partial break in continuity.

Halliburton's[15] recent experiments on animals in order to study the degeneration and regeneration of nerves are of interest. He took a series of cats, divided both sciatic nerves in the upper part of the thigh, and at varying intervals killed the animals, collected the blood and examined both the blood and nerves histologically and chemically. The following table of his presents a result of this interesting study:

This throws a light on the pathology of nerve degeneration and regeneration. The injury, although a complete severance of fibers, is a physical one. It shows an interesting pathological insight into osteopathic pathology of lesser or greater degree.

Halliburton remarks, "we see from the foregoing table that the nerves remained excitable up to the third day, and were chemically and histologically healthy. Beyond this date early signs of degeneration set in; the amount of phosphorised material in the nerves slightly dropped, and the amount of choline in the blood slightly increased. On or about the eighth day, the Marchi reaction became strongly marked. This date is coincident with a

great drop in the amount of phosphorus in the nerves, and with the appearance of a large quantity of choline in the blood." He further says the Marchi reaction remained at its acme up to the thirteenth day, and the amount of phosphorus in the nerves became less and less. In our experiments we have gotten marked passive congestion, hemorrhage by diapedesis and acute parenchymatous degeneration of the stomach walls and glands within seven and eight days. Halliburton says that the eighth day is coincident with a great drop in the amount of phosphorus in the nerves; Sajous says that nervous energy is liberated when the oxygen of plasma and the phosphorus of the myelin are brought into contact.

In Wallerian degeneration, Halliburton says, changes occur in all three parts of a nerve fiber. The medullary sheath presents the most marked change, a fragmentation into irregular droplets of myelin. The axis cylinder undergoes a corresponding break-up, upon which depends the loss of

Days After Section	Cat's Sciatic Nerves			Condition of Blood	Condition of Nerves.
	Water	Solids	Percentage of Phosphorus in Solids		
Normal	65.1	34.9	1.1	Minimal traces of	Nerves irritable and
1-3	64.5	35.5	0.9	Choline present.	histologically healthy.
4-6	69.3	30.7	0.9	Choline more abundant.	Irritability lost; degeneration beginning.
8	68.2	31.8	0.5	Choline	Degeneration well shown
10	70.7	29.3	0.3	abundant.	by Marchi reaction.
13	71.3	28.7	0.2		
25-27	72.1	27.9	Traces	Choline much less.	Marchi reaction still seen, but absorption of degenerated fat has set in.
29	72.5	27.5	0.0		
44-60	72.6	27.4	0.0	Choline almost disappeared.	Absorption of fat complete.
100-106	66.2	33.8	0.9	Choline almost disappeared.	Return of function; nerves regenerated.

function. In the neurilemma there is a multiplication of its nuclei; and in the nervous system where there is no primitive sheath an overgrowth of neuroglia occurs.

Halliburton's study of nerve regeneration is an interesting one. He concludes "that the activity of the neurilemma cells has some relation to the development of new nerve-fibers." He says the neurilemma activity appears to share with phagocytes in removing the broken-up myelin droplets. The distal portion of the nerve trunks subsequently elongate, and look as though they were connected end to end, thus leading to the formation of what appear like embryonic nerve-fibers. "To suppose that they really form new axis-cylinders would be against the views of Waller and the older physiologists, who taught that the axis-cylinder is essentially the branch of a nerve-cell growing distalwards from the central stump. Among recent writers, Howell and Huber, who have used both histological and experimental methods of observation, have arrived at the conclusion that although the peripheral structures are active in preparing the scaffolding, the axis cylin-

der, the essential portion of a nerve fiber, has an exclusively central origin." His own experiments on monkeys and cats, though at present incomplete, support this view. "The manifest activity of the neurilemmal cells is related in some degree, probably nutritionally, to the successful repair of a divided nerve. In situations like the central nervous system, where the neurilemma does not exist, not only is the removal of degenerated myelin a very slow process, but as is well known, regeneration does not occur."

Another notable point in connection with these experiments: A monkey's arm was rendered immobile by the division of a number of the upper posterior roots. Thus the anterior cornual cells, from which the corresponding motor fibers originate, are not subjected to stimuli from the periphery, and the arm is as much paralyzed as if the anterior roots had been cut. A histological examination of the posterior cornual cells in the cervical region showed they were atrophied, and that there was a considerable overgrowth of neuroglia tissue in the posterior horn. "Further examination of these spinal cords showed, however, that there had been a considerable number of small hemorrhages, sufficient in some cases to cause degeneration in various descending tracts in the cord. It therefore became quite possible to explain the effects observed by this complication. We are inclined to think that the hemorrhages are not due to mechanical injury of the cord during the operation, but are to be explained by the loss of support in the cord tissue which follows degeneration of the entering posterior root-fibers." (In connection with Halliburton's presentation there are some highly instructive and exceptionally good photomicrographs.)

A final statement to this supplementary article, we believe that sufficient data, experimental and other, has been offered, in the two papers, to fully warrant a strong and probable likelihood that a definite and extensive organic osteopathic pathology exists; that there is, at least, a partially demonstrable pathology no one will doubt. It is not for us to leap to conclusions; we can well afford to abide our time for continued experiments and experience, resting assured in one respect, at least, that clinical results are real and most important results, even if not scientifically demonstrable results in many instances.

SUMMARY.

1. Histology exhibits that the neurone is richly supplied with both blood vessels and lymph channels. That all parts of the body are in intimate and dependent relations each with the other through the medium of the nervous system.

2. Physiology teaches that the cells are very sensitive to altered vascular conditions, that the actual vitality of the cell is most dependent upon the integrity of the nucleus and of the fibrils, although the blood supply of the nerve fiber (axone) is comparatively insignificant (but not the nutrient supply to nerve centers) oxygen is essential, and the seat of oxidation is in the tissues and not in the blood.

That the neurone is a governing and controlling, a master tissue, keeping all tissues and physiological processes in close and dependent harmony.

3. Pathology reveals that all disease changes are really an attempt on the part of the organism toward repair and health; a condition wherein local and remote tissues are called into action through immediate and compensa-

tory changes to restore health. And that disease characteristics are largely dependent upon structure and function of tissue, and degree of irritant.

That physical, as well as bacteriologic and chemical noxæ may disturb distant tissues and organs, through the medium of the nervous system. And all curative processes are dependent upon nutriment, inheritance and environment.

4. Experiments substantiate these physiologic and pathologic theories; and, germane to the osteopathic conception of pathology, the physical injury is a real and demonstrable etiological factor.

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THE PRACTICAL CONDUCT OF CONTAGIOUS CASES.

Paper Prepared by FREDERICK H. WILLIAMS, D.O., Lansing, Mich. Read before the A. O. A. at Denver.

The time allotted for this paper does not permit me to touch upon the treatment of any one of the contagious diseases, nor will it permit me to consider the diagnosis or prognosis of these cases.

The care of contagious diseases is an important subject for us to discuss, although in the past the majority of practitioners have had their time so fully occupied with their non-contagious cases that they have not needed to give the subject of quarantine much attention.

There has been some dispute as to the exact significance of the word contagion; according to Gould, contagion is the transmission of diseases from person to person, either by direct contact or by means of some intermediate agent. The word infection is given a more elastic meaning by the same authority, which defines infection to be the transmission of diseases through the medium of air, water, etc. Dr. F. A. Grigg, in a recent article, quotes from many writers to show that the list of contagious diseases should include smallpox, varicella, pertussis, mumps, measles, scarlet fever, rubella, diphtheria, erysipelas, typhus fever, tuberculosis, gonorrhea, trachoma, glanders, pyemia, septicemia, parasitic skin diseases, relapsing fever, plague (in various forms), anthrax, leprosy, hydrophobia; and that the infectious list should include tetanus, trichinosis, hydatid cyst, malaria, syph-

ilis, typhoid fever, cholera, yellow fever, dengue, influenza and acute cerebro-spinal meningitis.

Osler in his text-book only speaks of six contagious diseases. Strumpell, the great German authority, places measles only on the contagious list, and since authorities differ upon this point we are left somewhat at sea, unless we regard the words contagious and infectious as synonymous, as is done by European writers.

In the consideration of this topic, I think it matters little whether a dangerous or communicable disease is conveyed from one person to another directly, according to the definition of contagion, or through air, water, or other media as infectious diseases are, for the majority of the contagious diseases are both contagious and infectious. In this paper I have chosen to regard these two words as synonymous, and to direct special attention to the various possible methods of preventing epidemics or pandemics.

Osteopaths have erroneously been credited with having so little regard for facts as to ignore the entire subject of bacteriology, upon the theory that disease germs are harmless when they are in healthy blood. When we concede that a germ is far less harmful when in living, healthy blood than in bad blood we only point out the fact that danger lurks around when the pathogenic germs are present, for one may be perfectly unconscious of the blood discrasia, or almost by accident, perhaps, have his physical resistance reduced by pneumonia, grip or some other debilitating disease, and then suddenly fall a victim to consumption. As we have no barometer which can give us a physical rating while we wait, the theory is robbed somewhat of its logic.

There is not one of us who willingly drinks from the same glass as the coughing consumptive, or eats with relish the loaf of bread from the hands of the syphilitic baker. The babe was never born with blood so pure that he was immune from ophthalmia neonatorum.

In such cases the physicians should feel as much responsibility for the protection of the well as for the care of the sick. "An ounce of prevention is worth a pound of cure."

The first duty of the physician, after making the diagnosis of a dangerous communicable disease, is to isolate the patient, and as quickly as possible place a notice upon the premises to warn and protect the public. All schools of medicine are bound in this respect by the same laws of health and sanitation. The health laws of most states require local boards of health to enforce a quarantine, and placard smallpox, diphtheria, scarlet fever, cholera, measles, whooping-cough and other dangerous, communicable diseases such as yellow fever, leprosy, etc., which are only prevalent in certain climates.

Only a sufficient number of persons should be admitted to the sick room to care for the sick. All papers, letters or other articles coming from the sick room should be disinfected. In the case of diseases such as cerebro-spinal meningitis, diphtheria, scarlet fever, measles, consumption, influenza, whooping-cough, typhoid fever, etc., in which the mouth or nasal secretions are capable of communicating the disease, the secretions should be received in a receptacle containing chlorinated lime, or, better still, the secretions may be received upon soft cloths and burned. In typhoid fever or cholera cases, the urine and dejecta should be disinfected with 2 ounces of chlorinated lime in one pint of water and allowed to stand one hour. I wish to

emphasize the importance of this precaution, by referring to the Alma and Cornell epidemics. In June the students of Alma college partook of contaminated ice cream at a banquet; as a result about sixty students developed typhoid fever, seven of the cases being fatal and many more at the time of this writing are not expected to live. It is quite probable that this epidemic was caused by a single case which was badly managed. We have none of us forgotten the typhoid epidemic at Cornell University two years ago, which was due to a contaminated water system, and which caused the sickness of about one thousand students, eighty-eight of whom died. The source of contamination in this case was traced to an ignorant Italian laborer, who lived in an unhygienic manner on the bank of one of the water reservoirs.

After the period of convalescence the patient should be sponged with a 1:3000 bichloride of mercury solution, particularly if there has been desquamation. Thorough disinfection of rooms should be insisted upon. If all unnecessary articles of furniture such as carpets, hangings, upholstered furniture, have been previously removed, this task is easy. Neither steam, formaldehyde nor sulphur can be used with the patient in the room, as their use in sufficient quantities to act as disinfectants would be destructive to human life. This knowledge should do away with the old and farcical method of spraying the room, placing saucers under the bed, etc. To thoroughly disinfect a room, wood work should be washed with a solution of 1:1000 bichloride of mercury. Cracks about windows and doors should be sealed with strips of paper pasted about them with flour paste, which can be easily washed off afterwards. Sulphur dioxide has the objection of being a bleacher in the presence of moisture and formaldehyde is much more efficacious and agreeable. 250 cc of 40 per cent. formaldehyde should be used for each 1,000 cubic feet of space in the ordinary sick room, and the room kept closed twelve hours. The Betz disinfector is here for your inspection. The large disinfecting apparati in the municipal quarantine stations such as on Hoffman Island, New York, where it is often necessary to disinfect the belongings of five hundred emigrants in a short time, consist of steam autoclaves and vacuum apparatus, together with formaldehyde vaporizers, shortening the time necessary from twelve hours to twenty minutes.

DISINFECTANTS.

No. 1. *For Rooms, Wood Work or Furniture*—250 cc. of formaldehyde vaporized in a disinfector for a room containing 1,000 cubic feet of space and the room left closed for twelve hours. A cartridge has been prepared containing a package of potass. permanganate and one of formaldehyde, which, when placed in a 10-quart pail with a little water decomposes with evolution of formaldehyde gas, doing away with the necessity of a vaporizer.

No. 2. *For Excreta, Cesspools, Etc.*—Chlorinated lime, 2 ounces; water, 1 pint. The above quantity for each stool should be left one hour. Bichloride not good, as it is decomposed by hydrogen disulphide.

No. 3. *Hands*—(a) Formalin, 6 ounces (formalin is 40 per cent. solution of formaldehyde), water, 1 gallon; or (b) hot 1:2000 bichloride solution followed by rinsing with plain alcohol.

No. 4. *Carpets, Rugs, Bedding, Etc.*—Steam disinfection in wash boiler

when possible, or formaldehyde disinfection in a small closed room, or, carbolic acid, 7 ounces, water, 1 gallon; or, lysol, 5 ounces, water, 1 gallon.

No. 5. *Woolen Clothing*—Formaldehyde disinfection in a closed room or 1:2000 bichloride for twenty-four hours, or 1:20 carbolic acid for twenty-four hours.

No. 6. *Sputum*—Lysol, 5 ounces, water, 1 gallon.

No. 7. *Cotton and Linen Clothing*—Steam or boiling one-half hour or 1:2000 bichloride twenty-four hours.

LEGAL REGULATIONS.

One of the most important phases of this subject is that relative to the legal regulations in the various states. The physician who would protect his professional standing does not want to be found without definite knowledge concerning the health laws of his state. It is an easy matter for any practitioner to address a letter to the secretary of the health board in his state asking for their published pamphlets, thereby fortifying himself in this respect. Intelligent people are quick to discern whether their physician is performing his duty or not, and their confidence has much to do toward creating professional prestige.

There are a few legal points which hold good in nearly all states. The infected sick can not be transferred from one locality to another, without a permit is granted by the local board of health, and also the board of health in the township or city of intended removal. Disinfection should be observed at both places. This permit and proof of disinfection is necessary before railroad companies will transmit persons or articles known to have been infected.

In order to transmit corpses of the recently dead, authority must be obtained from the local health officer, and in the case of a disinterred body, before the secretary of the state board of health can issue his permit he must see the certificate of the attending physician, and must have a permit of the health officer from which, and the health officer to which place the body is to be removed, and official assurance that the body has been disinfected and placed in a hermetically sealed casket. This is in accordance with the rules of the American Association of General Baggage Agents.

The personal safety of the physician should not be forgotten in cases of smallpox, scarlet fever, diphtheria, etc. It is well to protect oneself, his other patients and their families by wearing an antiseptic suit, which is slipped on just before entering the house at each call. The suit which is here for your inspection is made by the F. S. Betz Co., and has been impregnated with a 1:200 solution of bichloride and dried, leaving the antiseptic in the cloth.

The courts of Montana and Wisconsin have held that where a physician, going from a patient with smallpox to other patients, carried the contagion, he was liable to the latter in damages. The courts of New Hampshire and Maine hold that where the physician advised that a wound was not dangerous, and septic poisoning followed in another member of the family who had assisted in dressing the wound, there was cause for action against the physician. It behooves us, then, in the care of these cases to continually be watching out for the safety of ourselves and the public.

In closing this paper, which is necessarily short for lack of time, I have only been able to touch lightly upon important topics, but if it has served to stimulate the spirit of precaution and suggested ways and means of preventing epidemics and pandemics, my efforts have not been in vain.

DISCUSSION OF THE PRACTICAL CONDUCT OF CONTAGIOUS DISEASES.

By H. A. Burton, D.O., Denver, Col.

The practice of medicine was once described as the "practice of educated common sense." There are few more difficult fields in which to exercise "educated common sense" than in attempting to guide the public in the management of contagious cases.

Perhaps no other branch of medicine occupies so much thought of the medical profession as this class of cases. The physician who studies nature carefully, who makes himself thoroughly acquainted with the physiologic and pathologic processes of the human organism, acquainting himself with all the changes that take place in the body, will be successful when success is possible. When people understand that disease is a vital struggle of nature in self-defense, they will cease to fear it. They will fear only the causes, and instead of trying to suppress the symptoms will endeavor to remove the causes.

Dr. Still says: "Our success as osteopaths, in treating erysipelas, depends altogether upon good nerve action, blood supply and normal drainage. Train your guns on the blood, nerves and lymphatics of the fascia, and stop the cause at once. Health permits no stoppage of blood in either vein or artery, the intercostal nerve and blood supply must be normal or disease will follow stagnation of fluids. When we have adjusted the physical to its normal demands, nature universally supplies the remainder."

Diseases are results of neglect of some hygienic law or the transgression of some other. The individual, if he would have health, should not reduce his vitality or derange his digestion by eating too much or too litttle or by submitting to fear or excitement or any other condition which will diminish the normal resisting power. He should not permit work, pleasure nor social relations to interfere with his physical well being. He should be well clothed, properly fed and comfortably housed. Provide thorough and systematic ventilation from cellar to garret, care being taken to have free access of air under floors of houses which have no basements or cellars and to supply complete drainage. History tells us that sanitary measures methodically carried out are invariably followed by improved health and a decreased death rate. Before the streets of London were paved the inhabitants were as great sufferers from periodic fevers as are those of the most rural districts in our own country.

Sir Sidney Waterloo, formerly mayor of London, lost eight members of his family by diphtheria. "A penalty I paid," he said, "for being a wealthy man and having in my house all the modern conveniences, which, when it was too late, I discovered were defective."

In all cases of infectious diseases, the importance of using pure water freely should not be overlooked. Dr. Elmer Lee says: "My theoretic pre-

vention of smallpox, other than by vaccination, is the physiologic use of water introduced into the system through the mouth. Such is my conclusion based upon four thousand clinical experiences in the use of hydriatics." Mosny showed that the death rate from enteric fever in Vienna diminished from 11.5 per 10,000 to 1.1 per 10,000 after the introduction of water from the neighboring mountains.

The very best preventive of all diseases is a condition of well nourished physical purity, combined with a mental and bodily alertness that leads to the enjoyment of good health.

A contagious case should be reported to the health officer at once, and the patient should be removed immediately to a quiet, airy and sunny room. When possible, it is well to have two rooms, one opening into the other, so that the patient may be relieved of the monotony of the sick room by changing; a porch on the eastern or southern side is desirable, so when the day is fine he may be taken into the open air. The room should contain but little furniture; there should be no carpets or bed hangings; in fact, everything which is not conducive to the comfort of the patient should be removed. As soon as the symptoms show themselves, the patient should be put to bed. It is well to have two single beds in the room so that he can be changed from one to the other, especially when he is treated with the cold pack. He should rest on a spring mattress, with a mackintosh placed beneath the sheet. The temperature of the room should be kept between 60 and 65 F. In hot weather the temperature may be artificially reduced. All individual contact should be prevented by isolation, segregation or quarantine; there should be absolutely no communication between the infected and the uninfected.

Cleanliness is the chief antiseptic—systematic cleanliness should be practiced by thorough disinfection of the patient, sick room, all instruments, vessels and other apparatus or clothing used; by allowing no unclean or infected fabric or vessel to be taken from the room until rendered aseptic. When sponging the trunk and lower extremities, a little vinegar may be used in the water, occasionally; the mucous membrane of the mouth may be kept clean with a boric acid gargle. Special care should be taken to prevent formation of bed-sores, washing the nates and adjacent parts with weak spirits of camphor; as soon as erythema appears water or air cushions should be used.

The importance of keeping the emunctories of the body in order should not be lost sight of. This may be done by free use of water, both externally and internally, and osteopathic treatments, endeavoring to correct the lesions which may be obstructing the free flow of blood to these parts, for "perfect health is the natural result of pure blood." It is known as a physiological fact that certain fluids of the body, as blood, serum and gastric juice, when in normal condition, are germicides; such being the case, whatever helps to keep these fluids in a healthy condition will serve to fortify the system against the bacterial or infectious diseases.

Good nursing is of the highest importance. It means to the physician accurate and systematic information at his visits; to the patient, it means quietude, gentleness, neatness and diminished suffering. The physician should give definite and explicit directions. General directions on the part of the physician and general reports on the part of the nurse are inadmissible.

The diet should be nourishing, easily assimilable and given frequently. Milk holds the first place among fever foods; broths, soups, clam juices, etc., may be used. In typhoid fever cases, solid food is not to be administered until the evening temperature has been normal for a week.

A knowledge of statistic technique should be regarded as a fundamental part of the equipment of the osteopathic reasoner just as fully as equipment in chemic, bacteriologic and clinical methods is deemed essential at present.

With improved hygienic precautions and more scientific methods of treatment, typhoid and malarial fevers no longer bring consternation to our homes; the specters of tuberculosis and diphtheria are beginning to pale and show evidence of vanishing, the terrible sequelæ of scarlet fever are not so frequent under the efficient hands of the osteopath.

TECHNIQUE FOR REDUCTION OF THE DIFFERENT FORMS OF DISLOCATION OF THE HIP.

A Demonstration before the A. O. A. at Denver, by CHARLES E. STILL, D.O.

I have been interested in the school proposition this morning, and consequently have not given much thought to this subject. If there is one disease more than another that has placed osteopathy where it is at the present time it is the treatment of dislocated or partially dislocated hips. I remember some fifteen or sixteen years ago that osteopathy was almost exclusively confined to the reduction of dislocated and partially dislocated hips. I remember quite well being at Hannibal, Mo., on one occasion, and the morning paper came out in large black headlines stating that Dr. A. T. Still and sons, the "lightning bone setters," will be in town for ten days. Since that time the osteopathic treatment has greatly expanded, and at the present time we are treating all forms of diseases. The truth is that osteopathy today stands where it does because of the mistakes of the medical profession. If they had been correct in their diagnosis there would not be at the present time such enthusiasm over the practice and science of osteopathy.

We find that about 80 per cent. of all dislocations of the hip are back of the acetabulum— about 50 per cent. on the dorsum of the ilium and 30 per cent. sciatic—about 11 per cent. is the obdurator, and about 7 per cent. the pubic, and about 2 per cent. is the central dislocation, which last is the dislocation that we are unable to do anything for. Take, for instance, a case where there is tuberculosis, a weakened condition of the bone, a honey-comb acetabulum, and a jar of any sort on the great trochanter will have a tendency to break through into the pelvis. We have only been able to determine such dislocations to a certainty by the use of the X-ray, which has greatly assisted us in being able to ascertain exactly the condition of the joint.

Everyone has his peculiar way of determining what the dislocation is, and how to reduce it. I have my own. It is a compilation of many others. I have seen my father do a great many reductions. I have taken what I could from him and followed him as best I could. Therefore my way may be awkward to you, as my father's treatment of many cases was very awkward to me. It is a bad practice to imitate others. We can, by seeing special manipulations and special mechanics applied, formulate our own system. We have often heard the expression, a case well diagnosed is half cured. If we know the condition and understand the situation then we can work intelligently; if we do not, we are applying mechanical therapeutics as a masseur.

These masseurs and mechanical therapeutic people treat without any object in view, and may get relief, but they do not cure anybody.

These two cases that have been presented to me can not be successfully treated today. They are not, in my judgment, ready to be reduced. I have not examined this boy that is now before us. A history of the case was furnished me. The doctor who reduced the dislocation wanted to know how much longer general treatment should be continued. There are many cases we can not cure, but even in those cases we are able to relieve to such a degree that we feel pleased with the results of treatment.

I want to use Dr. Kidwell to show you how I get at a dislocation. We have found mistakes that have come from all forms of examination. I had occasion to treat a man some time ago who was a clinic in the Kansas City Medical College. He was exhibited on three or four occasions and they failed to locate what we call partial dislocation—the one that has made us what we are and which has brought us before the people. It need not be entirely out of the socket.

Dr. C. B. Atzen: When you speak of a partial dislocation what position is the joint in?

Dr. C. E. Still: It may be held in that position by the muscles. The bone may be in the socket. Some of the very best cases that we have had, and one that many of you will recall, was that of Mr. S. P. McConnell of Council Bluffs, Ia., that I treated a few years ago when he was on his way to Chicago to have Dr. Murphy remove the leg. We found partial dislocation and reduced it.

Dr. C. B. Atzen: What was the cause of the intense muscular contraction?

Dr. C. E. Still: It was due to injury. I have been very successful in judging if the leg is out of position by having the patient assume this position (indicating). The one that is out of position necessarily is abnormal at the hip joint, and we expect a little more rigidity on the lame leg than on the normal. In other words, we compare them and put them down in this position. If one resists a little more than the other we assume that one is out of position. It indicates that they are not alike. If the same pressure is exerted on each of the feet when they come down we conclude there is no trouble with the hip, there is no contraction, no relaxation. We then want to determine as to the general difference. You may pull the wrong leg sometimes if you have not applied some test. In the dorsal position, if this leg can be forced down without undue resistance, and the other leg resists this effort, then there must be something wrong with that leg if the former leg is normal. Now the patient is placed in a prone position. In this position we can tell what position the bone assumes. If the head of the bone is in the socket it is impossible to feel both ends. You can not feel the trochanter and the head of the bone if the hip is in the socket; but if it is not, taking the leg in this position, and carrying it across, you are bound to feel both the head of the bone and the great trochanter at the same time. Now, I take the patient in this position. I have had some cases where you could not tell, and then we resort to taking the picture, but in most of the cases we can come to a conclusion by taking some position like this. I fancy that most everybody here has some way of their own which to them seems best, and if you have, then follow it. Do not follow something shown unless you consider it better than your own way. My brother and Dr. Hildreth differ

with me in their mode of treatment. Ont person can work best by having the patient sit, another lying, and so on.

This (indicating) is bound to expose both ends of the bone if it is out of position. If it is below, above, or in front, you can make your diagnosis alike by comparison of the skeleton, but if it is in the sciatic notch, or if it is centrally dislocated this test will be of no avail. You can try it to ascertain whether it is in or out of the socket.

Now, what is the best mode of operation. Every man likes his own way the best. I flex the leg. If it is of recent injury, a traumatic dislocation the result of a recent injury, and it is either partial or complete we can get at it best in this way. This is my way (indicating). It gives me a chance to put the weight of my body on the knee and bring it in this position as I come down, as I straighten the leg to extend it, and this rotation gives me an opportunity to force the head of the bone into the colloid notch. We of course have to resort to different methods in mechanical therapeutics. We might have a case in which one hundred attempts of this character will fail.

You may have to apply counter traction so as to lift the head of the bone out of the position that it has assumed. In recent cases we seldom have to resort to that process. The treatment of a dislocated hip is a very difficult one if the hip is entirely out of position, but the ones that have made us trouble are the ones that are partially dislocated, and also partial dislocation of the innominate bones. Those are the ones we come in contact with most. If I have a case today to reduce before this audience it must be a partial dislocation in order to be successful; and every man that sees that case will want to know why his case could not be reduced at the same time, and just as rapidly. They do not take into consideration that one is a complete dislocation and the other is partial. It is the partial that is usually overlooked. Take the leg in this position and twist it like that. The right hand is on the trochanter in order to watch the way it moves. I also take some in this manner, as it gives me a chance to bring a great amount of pressure on the leg as we go down in that way. It gives us a chance to keep the leg on a twist for a backward dislocation, and this gives it a little jar when the bone goes into position. These are the kinds of operation we resort to most; but in exceptional cases we have to use various means to bring the bone into position. We may have to give an anæsthetic. We may have to treat for months to break up adhesions, as in the case of a Miss Critchfield that we treated for two years before we succeeded in breaking up the adhesions. We gave her up two or three times, but she said she tried everything else and received no relief, and after three years' treatment the adhesions were broken up sufficiently so that she had the free use of her limb. Doubtless some of you know of the case. Those are the tantalizing ones, and if the patient has not a great amount of perseverence, more so than the doctor, you will not keep them long enough to benefit them. As long as we notice improvement we should continue.

A Member: Do you always rotate the knee outward?

Dr. C. E. Still: I may not always do it. Sometimes I get the knee in this position and rotate outward on the foot. It is the different positions of the foot that give us a clew as to the exact condition of the dislocation. Take it in that way and you will guide the muscles to their proper position. Remember that the dislocated muscle will make as much pressure on the nerves as the dislocated hip. It may not shorten the leg, and may not

lengthen it, but it will produce a great deal of pain. Many times we have found that the severe pain that is present in knee trouble is only the muscles out of position. They make a pressure on some nerve that is making the cry at this point, and while I am dwelling on this subject I want to show you one of my blunders. I had a case some fifteen years ago, before there was any school of osteopathy. I though the hip was out of joint, because at that time everything was hips, hips, hips. I had pulled that man's leg until I was ashamed to meet him, and finally gave it up, and he was going home. During that time my father had been away and he came home just as the patient was leaving the city, and as he came in he saw an old soldier walking down the street with a limp, and when my father meets an old soldier he always asks what regiment he belonged to. In the conversation that followed he told my father that he had been down to the house and that his boys had been trying to correct the trouble in his leg, but were unsuccessful, and that he was now on his way home, as there was nothing that could be done for him. Well, father said, let us go back, and they came back, and father called me out and asked what was wrong. I said that was what I wanted to know. He had the man pull off the bandages around the foot, which was badly swollen, and father took hold of the big toe. I spoke up and said there was no trouble in the big toe. Now that was two and a half feet from where I tried to locate it. He said, we will see. He made an examination and found that the man had kicked something and in doing it he bent the toe forward, which stretched the ligaments between the sesamoid bones out of position. There he was, going home to have his leg amputated, just because I treated the hip, nearly three feet removed from the cause of the man's trouble, but fortunately met the old gentleman. Since that time I have made it a practice to examine both of the big toes.

We can not be too careful in our examination. If we are not satisfied there examine the spine. There are conditions that will produce pain that are obscure. Some of the lesions are very obscure.

In a normal, healthy person all the bones must be in their proper place according to the osteopathic teaching, and if they are not, and the patient comes to you and you can not give him a specific treatment because of your ignorance of the lesion at the base of the trouble, and you give him a so-called general treatment without getting results, and then the patient goes to some one who is capable of locating the specific lesion that is producing the trouble, you will be placed in an embarrassing position. Commence at the periphery of the nerve involved and go upward through its route until you have found where the cause of the disturbance lies.

A NOTE OF WARNING.

JAS. L. HOLLOWAY, D.O., Dallas, Tex.

There are some things in the medical world of which it would be well for us to take heed. It is a wise saying that "In time of peace make ready for war." And while war in any sense is repugnant to most of us, we can ill afford to be blind to the fact that, as a school of therapy, we are just entering one of the bitterest campaigns that we have yet experienced. I hope I am not an alarmist, nor am engaged in an attempt to incite others to an attack upon imaginary wind-mills under the delusion that there are real enemies when none actually exists. The publicity given osteopathy through the press, on the platform, before the footlights, in addition to that already given by

reason of legislative action and court decisions, has awakened our allopathic friends as they have not been aroused since Hahnemann issued his dictum, *"Similia similibus curantur."* If I did not have implicit faith in the ultimate triumph of the right, if I did not believe that justice though blind will have her dues, that our people demand and will have a "square deal," for one, I would hesitate to throw down the gage of battle. For we must remember that it is 4,000 D. O.'s against 150,000 M. D.'s with a network of organizations in every town and hamlet in the United States, possessing all the machinery of municipal, state and national boards of health, jealous of any encroachment upon rights and privileges to which, by reason of age, they hold themselves inalienable.

In the matter of securing legal recognition, osteopathy has made a phenomenal record. But henceforth, every inch of vantage will have to be gained by a contest far more stubborn than any hitherto undertaken.

The chairman of the organizing committee of the American Medical Association, Dr. John N. McCormack, is making a tour of all the states with a view of cementing their forces preparatory to amending or repealing objectionable laws, securing new legislation conforming to their demands, or preventing the passage of measures inimical to their supposed interests. As an evidence that such is his true mission, I quote a few statements from the press report of an address recently delivered in Dallas. After deploring the fact that out of 150,000 drug practitioners in this country, 80,000 do not read a medical journal and 50,000 never attend a medical meeting, he goes on to say: "Medical men should enter politics. They should go to the legislature. There is much work for them there. What does the lay mind know of the proper means to keep proper sanitary conditions of our rivers, and cities and canals?" Is it not true that the doctor politician, as we know him today, has exercised his talent more to secure laws whereby the so-called 'irregulars' may be excluded from the bedside of the sick than he has in securing comprehensive measures of general sanitation? To those who know the real intent of this campaign, ostensibly waged in the interest of the people, the veil of subterfuge thrown around this question of "the sanitation of our rivers, cities and canals," is so thin that deception is wholly unmasked, and behind this patriotic sentiment stands revealed an unmistakable purpose to throttle by legisation those who repudiate drug medication. But to quote further. In addressing the clergy he said: "The clergy as a class do a world of good. No one more fervently acknowledges that than I do, but we should all work together. Our laws should be amended. I consider Alabama an ideal state in this respect for the medical fraternity play such an important part in the making of her laws. The time will come within the next generation when we will all work together for the common good so that the medical profession will be the great force in our affairs." The fact that in the eyes of Dr. McCormack the Alabama law is the ideal for all states, gives one a pretty fair idea of what would become of osteopathy if the goal of his ambition is attained. It was in Alabama that the president of the State Medical Association declared, two years ago, that "physicians should go into politics so that aspirants for office who guard the interests of osteopaths and other specialties not approved by the regular physicians, may be eliminated from attendance in the halls of the legislature."

It may refresh the memories of some, and be news to others, to know the

attitude Dr. McCormack has assumed toward osteopathy from the first. As secretary of the Kentucky State Board of Health in 1896, upon representations based on a visit he made to the Kirksville school, and an examination of some of its graduates, he was instructed by that body to bring action against Dr. Ammerman and wife for practicing osteopathy without a certificate. "The grand jury heard both sides of the controversy and not only refused to indict, but it required a personal appeal from Judge Goodnight (the presiding judge) to prevent them from indicting Dr. McCormack for perjury." (Booth's History, page 177.) In the case against Dr. Nelson in 1898, made famous by the rank decision of Judge Toney (reversed later by the supreme court of the state), "Dr. McCormack testifies that the osteopathic treatment of disease is positively dangerous in most of the diseases which they profess to cure, and that in his judgment to license Dr. Nelson would be dangerous to the health, limbs and lives of those citizens who might be treated by him in most instances." (Booth, page 179.) In 1904, before the state legislature, Dr. McCormack led the opposition to the Kentucky osteopathic measure but gracefully gave his approval when no other course was open.

A very significant statement, evidently inspired, appeared in one of our local papers after Dr. McCormack's departure, to the effect that there would be held soon a conference among the lawyers, clergy and doctors to discuss the question of "expert testimony" and "the relation of the pastors to the sick room." This was innocent enough, but the statement following, from a shrewd political doctor, that the primary purpose of the meeting "would be to devolve some plan which would result in the passing of laws that would redound to the good of the citizenship at large," is unmistakable evidence that the Alabama idea is vigorously at work. It takes no prophetic vision to read in this unwonted activity the real purpose of the great organization of which Dr. McCormack is the representative, viz., the stifling of this young Richmond of osteopathy.

Are we ready to take up the gage of battle. If not, it is high time that full preparation be made.

Committee on Necrology.

The following members of the A. O. A. will constitute the Committee on Necrology for the present year: Dr. Roger E. Chase, Tacoma, Wash., chairman; Evelyn K. Underwood, New York; C. W. Young, St. Paul; Bessie A. Duffield, Nashville; Ira Spencer Frame, Philadelphia.

Members of the A. O. A. are requested to notify the chairman, or some other member of the committee, of any deaths occurring among members of the Association or their families.

The crusade against patent medicines which is being made by *Collier's Weekly* and other journals is a hopeful sign of the times. It is an open question which is the more harmful in their effects, patent or prescribed remedies. If the former are the more widely used and easily obtained the latter are the more powerful. It is only a step, therefore, from a war on patent medicines to a war on drugs in general. The medical profession has always condemned patent nostrums, yet it is quite evident that its false teachings, that something should be "taken" for every ill, is responsible for the gigantic trade in patent medicines.

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DECEMBER, 1905.

Doctor Walsh Versus Doctor Still.

If all osteopaths, and those interested in osteopathy, could read the three numbers of *The Independent* for November 9, 16 and 23, respectively, it would be all the better for osteopathy. In the issue of November 9, Dr. A. T. Still has an article on "The Principles of Osteopathy;" on the 16th, a reply by Dr. James J. Walsh, a "regular" physician, appears, and on the 23d the result of the popular vote taken by *The Independent* on candidates for the Nobel prize is announced, which result is highly pleasing to the friends of osteopathy, as Dr. Still—his friends having put him forward as a candidate for the prize offered the one having made the greatest discovery in physiology and medicine—received 22,061 votes, and, as *The Independent* expressed it, "snowed under" all other candidates. His claims, we are informed, will be pressed before the Court of Award.

Dr. Walsh complains that Dr. Still employed fifteen hundred of his two thousand words in telling "what every medical student knows at the end of his second year." But inasmuch as Dr. Still was not writing for medical

students, but for the benefit of the laity, it was by no means inappropriate that he should have devoted considerable space to the fundamental facts of anatomy and physiology as they bear on his theories. We are not saying that Dr. Still might not have stated more fully the fundamental theories of osteopathy, but Dr. Walsh is the last man who should complain of this, for in five hundred words Dr. Still has given Dr. Walsh a bad half hour and stated truths that he has failed in two thousand words to controvert.

The learned doctor very accurately gets at the gist of Dr. Still's theories when he states in effect that in lesions of the vertebrae he finds the exciting or predisposing cause of something like 95 per cent. of diseases. His effort to disprove or discredit this by expressing wonder that such causative factors should have been overlooked by "regular" physicians "all down the centuries" is without weight as argument, since he admits that such is the case.

What he considers a *coup de grace* is administered when he cites the effects of Pott's disease in distorting the vertebral column and in changing the structural relations of the vertebrae. Instead of these subjects being radically diseased he states they "are usually quite healthy." In these cases we find an illustration of an osteopathic precept, albeit it is not an osteopathic discovery—the healing power of nature. It shows the supreme effort nature constantly puts forth, unaided and uninfluenced by drugs, to adjust itself to changed conditions of structure and position and how, ultimately, in a measure, she succeeds.

Unfortunately for Dr. Walsh's argument he states that persons with humped backs often suffer from what is called the kyphotic heart, because of the mechanical difficulty it experiences in performing its functions in its crowded quarters. Exactly what an osteopath would expect. He further says that if the tubercular process should begin over again, "then, of course, they are likely to fall victims." Why "of course?" The osteopath would say because of the interference with the blood and nerve supply, which is a direct predisposing cause. It is a fact, however, noted by osteopaths and we presume by all physicians, that untoward results are not always apparently directly proportioned to the grossness of the lesion. But this does not prove that the lesion was not the cause of the effect noted. For a more complete and convincing discussion of this point the reader is referred to Dr. Guy D. Hulett's book, "Principles of Osteopathy."

Doctor Walsh does not say that interference with the blood and nerve supply of organs or tissues on account of lesions at the vertebral foramina is impossible; nor does he say that organs and tissues are not dependent upon their blood and nerve supply for health, yet his argument seems to indicate that he takes the negative of both these propositions. Does he really wish to assume such a position?

Dr. Walsh complains because Dr. Still mentions cures performed by osteopathy as evidence of the truth of his theories, and says that "it is always to the cures effected by him that every quack and charlatan in medicine appeals." Does the good doctor want to make it appear that cures effected is proof of quackery? If so, does he not make quackery respectable? Many will agree with the Missouri legislator who said he would rather be cured by a quack than killed by a regular.

The "reply" to Dr. Still closes with these words: "If the osteopaths will but pass the ordinary state board examinations in medicine the regular pro-

fession will be only too willing to let them practice the cure of disease as they think best."

Dr. Walsh, like all of his professional brethren who have taken up the pen against osteopathy, misses the real point of the matter. Since he evidently read Dr. Still's article he should know that the difference between "regular" medicine and osteopathy is not merely one of therapeutics. He should see that osteopathy is a new philosophy of life. Facts which adherents of the different systems know and recognize in common have a different significance for each, and the passing of the "ordinary state board examinations in medicine" woud be no fitting test of one's ability "to practice the cure of disease" as an osteopath. So long as the profession to which Dr. Walsh belongs insists that our fundamental theories are wrong, so long must osteopaths insist upon independent recognition.

Legislation.

Events in osteopathic history have moved with such rapidity that we have sometimes been confronted with conditions before we were ready to meet them. A dozen years ago there were few in the profession, even the most optimistic and enthusiastic, who would have dared to prophesy such a proud, prominent and permanent position for osteopathy as it now occupies. Partly on this account and partly because of the necessity of attaining some sort of recognition for osteopathy as a school of healing, some of our early essays at legislation are now found to be inadequate for our present needs. This much may be said without adverse criticism of the heroic self-sacrificing efforts of the pioneers in this line of work.

Legislative matters have in recent years received more consideration, and the result of the careful thought of the profession has culminated in a bill, recommended practically without dissent as to its essential features, by the A. O. A. at its last meeting. There was no objection to the idea of independent recognition. Taking conditions as they now exist practically in every part of the United States, it would seem that there can be no valid objection to this policy.

The necessity for uniformity of legislative regulation is apparent. There should be uniformity of preliminary requirements for those who take up the study as well as for graduation in our schools. There should be uniformity in the examinations of the various state boards, as well as in the matter of the credit to be given by one state board to the examination of the boards of other states. A physician duly licensed in one state is no less competent after ten years of practice, though he might have difficulty in answering the technical questions of a state board. He should not be subjected to that annoyance and embarrassment should he desire to locate outside the state where he was first licensed; all of these, as well as many other important things, are provided for in the A. O. A. bill.

We believe, therefore, that in all future attempts at legislation the essential provisions of the A. O. A. bill should be adhered to.

We would with all possible earnestness urge upon those of our profession who have legislative matters in charge, to stand firmly for independent recognition along the lines of this bill. Be chary of compromises. If experience is to be credited as a wise teacher we should have learned the lesson that the opposition to osteopathy is implacable and no compromise

advantageous to it will be allowed. We should be very careful that in grasping at the shadow we do not miss the substance.

The New Directory.

This month we are sending out as a supplement to the JOURNAL the quarterly directory. It has required an immense amount of labor to compile this edition. There have been a large number of removals during the past quarter, a goodly number of new members have been added and over one hundred names have been dropped on account of failure to pay dues. We have taken infinite pains with the directory, and we believe it is correct. If each member will look at his name and notify us of any error, and if all will promptly report to us changes in address the directory can be kept strictly accurate, and with a minimum of labor.

Out of a membership of one thousand there were one hundred and fifteen who failed to pay dues. Quite a number of these delinquencies were due to ill health and other misfortunes; in some cases it was probably carelessness, while perhaps others, for reasons satisfactory to themselves, desired to discontinue their membership.

In the following states there were no delinquents: Arizona, Delaware, Indian Territory, Louisiana, Maryland, North Carolina, North Dakota, Oklahoma Territory, South Carolina, South Dakota, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin and Wyoming. We still retain one member each in England, Scotland and the Hawaiian Islands.

The largest loss in a single state occurred in Missouri, where sixteen dropped out. It is worthy of note that Ohio, which had fifty-nine names in the September directory, loses but one through failure to pay dues.

Since the directory was issued in September thirty-nine new names have been added and twenty-eight applications are now pending, hence the net loss has not been great, though we are slightly below one thousand members. From reports received from various parts of the country we are assured of a large increase before the year closes, but the greater part of it will likely be gained within the three months preceding the meeting at Put-in-Bay.

The Foe of Plague.

It is likely that Professor Behring has indeed found a substance that will make the human body immune to the attacks of the bacilli which produce the several forms of what is popularly called consumption. His is good news, perhaps the best that has ever come at a given moment from the laboratories of science. But, taken by themselves, all these preventives and cures are subordinate in importance to the never-sensational progress of sanitary science. Professor Wallace noted that no sooner did science discover a remedy for any particular disease of great distinctive effect than some other disease pushed forward to maintain the general average of mortality from disease. Why? Because the cause of all diseases, the conditions that made the tissues of the body easy prey, were unaffected.

That cause? Those conditions? Bad air; bad water; bad food; utter lack of proper care of the body. It doesn't matter especially what is the name of the disease that carries a man off; the central fact is that he is dead. And the great truth always to keep in mind is that he would have lived, though the plague raged around him, had he kept his body strong.—*Saturday Evening Post.*

With a justifiable measure of doubt as to the reality of Prof. Behring's "substance" being able to confer immunity from consumption, and by reading our own interpretation into what constitutes "proper care of the body" osteopaths can pretty generally indorse the above. It is an augury of better things, too, when great lay journals like *The Saturday Evening Post* are so constantly teaching such doctrines.

Within the past month our attention has been called to four cases of unethical advertising on the part of members of the A. O. A. There is, perhaps, no other way in which an osteopath can bring such general discredit upon his profession as in the practice of resorting to fake methods of advertising. That there may be no excuse for such exhibitions in the future we reproduce here section 6 of article I, chapter II, of the code of ethics:

> It is incompatible with honorable standing in the profession to resort to public advertisements or private cards inviting the attention of persons afflicted with particular diseases; to promise radical cures; to publish cases in the daily prints; to invite laymen (other than relatives who may desire to be at hand) to be present at operations; to boast of cures; to adduce certificates of skill and success, or to employ any of the other methods of charlatans.

The cases above mentioned have been referred to the Committee on Education, whose duty it is, under the constitution, to take cognizance of such matters.

Through an error of the binders one form was duplicated and one omitted from a few copies of the November number of the JOURNAL. Unfortunately this was not discovered until after the edition had been mailed. So far as we have had notice subscribers have been furnished with properly bound copies, and it is our desire that all who receive a defective one should be thus supplied. We request that imperfect copies be returned to us—a one-cent stamp will carry them. The binders will be able to correct the error, and it is expected that every copy of this edition will be needed.

In our October number mention was made of the advertisement of a correspondence course in osteopathy which appeared in *The New York Magazine of Mysteries* for September. At that time the matter was referred to the chairman of the Committee on Education of the A. O. A., who at once took it up with the publishers. Dr. Booth, we are pleased to state, wrote us recently that he had received a statement from them that henceforth no such advertisements would be carried in their magazine.

The excellent article in this number of the JOURNAL from the pen of Dr. McConnell will not be put in pamphlet form. But the doctor has now in preparation an article which will appear in a few months which will be arranged and adapted for that purpose. It will give the result of several additional experiments the author has recently made and will be illustrated in a manner similar to his article in the September JOURNAL.

Secretary Chiles has recently finished the task of mailing certificates of membership to all who are entitled to them. We trust that all who received them will comply with the request contained in the letter which accompanied them. If any person who thinks himself entitled to a certificate failed to receive one he should at once write to the secretary. The delay in mailing was caused by the engravers and not by the secretary.

With this issue appears a new form of blank for case reporting, which may be clipped from the JOURNAL, or, using it as an outline of inquiry, reports may be written upon other paper. This blank has been prepared by Dr. Ashmore especially for reports of cases of infectious diseases. For the

aid of the speaker upon acute respiratory diseases at the meeting at Put-in-Bay, a contribution of reports bearing upon these conditions is urged.

We print in this number the proposed program of the next annual meeting of the A. O. A. This has not been unalterably determined upon, and is printed at this time to enable any member who may have any suggestions to make, an opportunity to be heard. Dr. McConnell, who has the matter in charge, will be glad to receive any suggestions from any one in regard to the program.

On November 20 we mailed over 300 sample copies of the JOURNAL to non-members of the A. O. A. in the western states, whose names were furnished us by members interested in the advancement of the cause. We are always glad to co-operate in this way.

Osteopathy in the Encyclopedias.

Under the above caption Dr. Herman H. Moellering, of St. Paul, in the *Osteopathic World* for October, discusses an interesting and timely question. He points out the fact that three of the leading encyclopedias do not contain a word about osteopathy and shows that at least in one other the subject is treated in an unsatisfactory manner. Had he consulted more encyclopedias possibly he would have been able to put others in the latter class.

Dr. Moellering makes the following good suggestion:

> It seems to me that what we need is some clear, concise and *authoritative* statement of the subject, with which to approach all encyclopedia publishers in anticipation of future publications. Such a statement should not be too abstract or involved; it should be pointed and comprehensive of the facts, so that he who runs may read and understand, for these are the works consulted by the laity as authorities.
>
> The A. O. A. through a committee to be appointed or now existing, would seem to be the proper medium through which to get adequate representation in these publications. Such a statement of osteopathy can be better shaped by several minds than by one, and its draft might even be submitted to the A. O. A. Trustees for approval, and might also be published in the A. O. A. JOURNAL for any possible criticism.
>
> There is no doubt but what publishers or editors of reference works, after understanding the import of the A. O. A. in matters osteopathic, would give the greatest of heed to any advance of this nature, and be at least materially guided thereby.

Inasmuch as a definition of osteopathy to be printed in encyclopedias involves the question of publication, is educational in its nature, and should also deal with its legal aspects, the matter is respectfully referred to a joint committee composed of the three constitutional committees of the A. O. A. of which the chairman of the Committee on Publication is designated a chairman. In the May and July (1902) numbers of the JOURNAL many excellent definitions of the science are recorded and will afford a working basis for the committee. But as subjects are treated more in detail in encyclopedias it will doubtless be found that in addition to a definition, it should be treated historically and descriptively, as well as a science and an art. It is not to be expected that the last word will be said on the subject, but it is hoped that the best possible statement may be formulated for the purpose intended. It is suggested that the committee report through the JOURNAL the result of their labors, and if deemed desirable the Trustees of the A. O. A. may later act on the report.

A. L. EVANS, President A. O. A.

Proposed Program of the American Osteopathic Association, at Put-in-Bay. Ohio, August 6th to 10th, 1906.

MONDAY, AUGUST 6.

1:30 p.m. to 5:00 p.m.—Reports of Committees—Publication Committee, Educational Committee, Legislative Committee.
Treasurer's report.
Trustees' report.
Routine business.
8:00 p.m.—Reception.

TUESDAY, AUGUST 7.

9:00 a.m to 1:00 p.m.—Symposium of Practical Treatment (clinic demonstration of technique):
(a) Cervical Region.
(b) Dorsal Region.
(c) Lumbar Region.
(d) The Pelvis—Sacrum, Coccyx, Innominata.
(e) Ribs and Vertebrae correlated.
General discussion.
8:00 p.m.—President's Address.

WEDNESDAY, AUGUST 8.

9:00 a.m.—Practical Dietetics. General discussion.
10:00 a.m.—Osteopathic Applied Anatomy. (Demonstrations with clinic. Informal discussion.)
11:45 a.m.—Paper: "The Enlarged Prostate and Allied Tissue Disorders."
12:10 p.m.—Business.
8:00 p.m.—Alumni and class reunions.

THURSDAY, AUGUST 9.

9:00 a.m.—Pediatrics.
(a) Infant Nursing.
(b) Osteopathic Treatment of Infant Disorders.
(c) Prophylactic Treatment of Children.
General discussion.
10:30 a.m.—Emergencies.
(a)..Hemorrhages.
(b) Unconsciousness or Insensibility.
(c) Fits or Seizures.
General discussion.
12:00 m.—Paper: "Osteopathic Lesions in Acute Respiratory Diseases."
12:20 p.m.—Prize Essay (announcement).
12:20 p.m.—Business.
8:00 p.m.—Alumni and class reunions.

FRIDAY, AUGUST 10.

9:00 a.m.—Osteopathic and Surgical Diagnosis. (Demonstration with clinics.)
(a) Pelvis (gynecological).
(b) Abdomen.
General discussion.
10:30 a.m.—Practical Talk: "When is a Surgical Operation Advisable?"
11:00 a.m.—Business. Election of officers, fixing next meeting place, installation, adjournment.

ASSOCIATE PAPERS.

1. Conjunctivitis.
2. Iritis—Etiology, Pathology and Treatment.
3. How Osteopathic Lesions Affect Eye Tissues.
4. The Treatment of Eczema.
5. What Osteopathy Has Done With Tumors.
6. A Few Cases of Mental Diseases.
7. Purulent Discharges From the Ear.
8. The Menopause.
9. Pronounced Insomnia.

Dr. O. G. Stout, president of the Ohio Osteopathic Society, recently sent a strong letter to the osteopaths in that state, urging membership in that organization and in the A. O. A. He gave many good reasons why they should identify themselves with these bodies and keep up their membership in them. Such efforts can not fail to be productive of good.

NOTES AND COMMENTS.

Attempts of M.D.'s to Develop a General Fear of Osteopathic Manipulations.

If our medical brethren would content themselves with open, outspoken opposition of the honest sort, osteopathic triumph over the pill chest and hypodermic needle would be hastened. Opposition which does not come under that head is instanced by the efforts of medical men to create the impression that a patient runs much personal risk in subjecting himself to the manipulations of the osteopath. So much of this has come to the writer's knowledge during the past year and from so many different sources that it furnishes grounds for the suspicion of concerted action along this line on the part of the radicals of the medical profession.

Not having been able to pooh! pooh! the public from choosing to get well by means of what they termed a delusion and a fad, they will now say booh! and try to make of the osteopath a bogy man.

Recently a young married woman suffered a miscarriage. After getting up she had a "bad back." The spine could scarcely be touched, it was so tender. She was given treatment for her condition by a reputable M.D., and after a little time was told that she could go to the Portland fair, as she did not seem to improve much and the visit to the fair would probably help her. About this time she again became pregnant. While on her trip and at the fair she was treated by several osteopaths, and got better for a time. Then she returned to her home in Butte, Mont. Ever since becoming pregnant, which was about two and a half months before the time she returned to her home in Butte, she had been very nervous and hysterical. After being at Butte a few weeks she was sent to her mother in the east. A month later she died there. The M.D. in attendance said it was cancer of the spine, the inference being that she had had too many osteopathic treatments.

A gentleman in another locality was just recovering from typhoid fever and wanted very much to have an osteopath. He wanted him in the first place, but the M.D. was called while the gentleman was delirious. The M.D., while pretending to be a personal friend of the osteopath, said that he would consider it very unwise for the gentleman to "run the risk" of having an osteopath until he grew strong.

Recently a lady was taken to the Sisters' hospital at Missoula, Mont., with an abdominal abscess. One of the physicians who examined her, and who understood that she had just been under the care of an osteopath, stated to outside persons that the abscess was due entirely to the writer's manipulations. The abscess was a development of a month. Two other M.D.'s had examined her during that time and they had not discovered it. The osteopath was called and asked to examine the abdomen. He discovered the abscess. He *had not treated her for five months*, except for a headache. The lady's friends were aware of this and also of the fact that she and her family openly gave the osteopath credit for saving her life. The effort of the M.D. to make capital of the matter was generally recognized and just as generally condemned. However, had it first reached those not knowing the circumstances or aught of osteopathy, it would have done harm. Instances like the above could be multiplied indefinitely. I might mention that in a certain abdominal operation performed by the last referred to M.D. some time ago, the wound did not heal and was later reopened by other physicians. I am informed that the removal of a goodly sized piece of sponge from the abdominal cavity facilitated the healing process. If all of the people who have died under "successful operations" were buried in one grave yard, the subtle and underhanded opposition of some medical men to osteopathy might not be lessened, but it might make them wonder how much longer the supply for operating material was going to last.

ASA WILLARD.

Missoula, Mont.

Philadelphia County Osteopathic Association.

The Philadelphia County Osteopathic Association held its regular monthly meeting Wednesday evening, November 8, 1905, in a hall at 1414 Arch street, Dr. J. Ivan Dufur presiding. After the transaction of the current business an interesting program was enjoyed.

The first paper, an article on "Nephritis," by Dr. E. D. Burleigh, was a careful study of the acute and chronic forms.

The second paper, "The Osteopathic Lesion in Nephritis," by Dr. Myron H. Bigsby, was especially fine from an osteopathic standpoint.

The articles were ably discussed by those present.

The meeting adjourned until December 5, 1905.

ABBIE JANE PENNOCK, Secretary.

When preparing the report of the New York Osteopathic Society, held last month, which appeared in the JOURNAL for November, we were not in possession of the names of the trustees elected. They are as follows: Drs. Ernest C. White, Watertown; Ralph H. Williams, Rochester, and Charles Hazzard, New York.

Vermont Osteopathic Association.

The sixth annual meeting of the Vermont State Osteopathic Association was held in Barre, Vt., October 25 and 26, at the office of Dr. L. D. Martin, president.

On Wednesday evening the members were most hospitably received by Dr. and Mrs. Martin at their home, where a pleasant social hour was enjoyed, followed by discussions on topics of interest.

On Thursday, after an informal program, the following officers were elected and the meeting adjourned: President Charles G. Wheeler, Brattleboro; vice-president, Rose Cota, Burlington; secretary and treasurer, Harry M. Loudon, St. Albans; executive committee, Samuel M. Knowles, Montpelier; Herman K. Sheburne, Rutland; William W. Brock, Montpelier.

H. M. LOUDON, Secretary.

California Board of Osteopathic Examiners.

The following constitute the California State Board of Osteopathic Examiners: Drs. Wm. J. Hayden, Los Angeles; Dain L. Tasker, Los Angeles; C. A. Haines, Sacramento; Isaac Burke, San Francisco, and J. Strothard White, Pasadena. Dr. Hayden is president, Dr. Haines treasurer and Dr. J. Strothard White, 315 Slavin Building, Pasadena, is secretary.

The following action was taken by the board some time ago and will be of interest to anyone contemplating locating in the state: "It has been resolved by the California Board of Osteopathic Examiners that certificates will be granted only to those who have had a three years' course of study; and certificates will not be issued to those who are not located in the state."

Maine Osteopathic Association.

The regular monthly meeting of the Maine Osteopathic Association was held September 30 at the office of Dr. V. D. Howe, Portland. After the regular business meeting the evening was spent in discussing cases of gaseous disorders of the stomach.

The October meeting was held with Dr. George H. Tuttle, Portland. Dr. George D. Wheeler of Melrose, Mass., was with us and conducted a clinic, presenting two cases of spinal curvature and two with dorsal lesions. The meeting proved both interesting and helpful. One new member was gained, Dr. Lillian Wentworth of Augusta.

SOPHRONIA T. ROSEBROOK, Secretary.

Lecture by Dr. McConnell.

The following invitation was recently mailed by members of the Chicago Osteopathic Society to their friends:

"The Chicago Osteopathic Society requests your presence at a lecture and scientific demonstration on osteopathic therapeutics entitled 'The Osteopathic Lesion,' by Dr. C. P. McConnell, at Kimball Hall, corner Jackson Boulevard and Wabash avenue, Thursday evening, November 23d, at eight o'clock."

The event was largely attended and much interest was manifested.

PERSONAL.

Born, on October 11, 1905, a son, to Dr. and Mrs. D. L. Conner, Phoenix, Ariz.

Born, on October 27, 1905, a daughter, to Dr. and Mrs. A. D. Morrow, Richmond, Mo.

Dr. Janet M. Kerr, Grinnell, Iowa, is in Kirksville, Mo., taking a post graduate course at the A. S. O.

Dr. C. W. Proctor, Buffalo, N. Y., is enjoying an outing in Central America—the first real vacation he has taken in years.

Dr. Jesse Knight Dozier, Middletown, Conn., was married to Miss Agnes Harris of Middletown, N. Y., in the latter city on November 1, 1905.

On December 5 Dr. Chas. C. Teall, accompanied by his wife and son, will go to Altamonte Springs, Fla., where the doctor will enjoy a well-earned rest.

Dr. George Laughlin has been appointed medical examiner for the Missouri State Life Insurance Company of St. Louis. Dr. Laughlin is the first osteopath ever appointed as examiner for an old line life insurance company. The appointment was made by Mr. E. P. Nelson, president of the company.—*Kirksville (Mo.) Journal*, Nov. 23, 1905.

A new edition of Dr. Charles Hazzard's "Practice of Osteopathy" will be ready about January 1, 1906. This will be the third edition of the work, which will be entirely rewritten and considerably enlarged. The value of the work will be much increased in view of the added years of experience in the practice of osteopathy which the author enjoys, as well as of the important advancements which the science of osteopathy has made since the publication of the second edition.

REMOVALS.

Earle S. Willard, Norfolk, Va., to 35 S. 19th St., Philadelphia, Pa.
E. J. Elton, Kenosha, to 507-8 Wells Bldg., Milwaukee, Wis. (Dr. Elton divides his time between Kenosha and Milwaukee.)
Mrs. T. E. Purdom, 1327 to 1331 Troost Ave., Kansas City, Mo.
Harry M. Loudon, Enosburg Falls, to 189 S. Main St., St. Albans, Vt.
Eugene Tiberghien, Agra, to Hill City, Kan.
A. Still Craig, Iowa City, Ia., to Maryville, Mo.
H. W. Forbes' address is 685 W. Lake St., Los Angeles, Cal.
C. H. Spencer's address is 687 W. Lake St., Los Angeles, Cal.
T. C. Morris, St. Catherine, to La Plata, Mo.
Neville E. Harris, Port Huron, to 206 Paterson Block, Flint, Mich.
Florence A. Brock, Chicago, Ill., to Lake View, Washington.
John Allen West, 144 E. 22d, to 40 E. 25th St., New York.
J. A. Root, 308 W. 7th, to 2124 Sassafras St., Erie, Pa.
H. E. Penland, Eugene, Ore., to Kirksville, Mo.
J. S. Gaylord, Binghamton, N. Y., to Muscotah, Kan.
Geo. S. Warren, 245 Wall St., to 18 Pearl St., Kingston, N. Y.
Edward Storrs Bickford, Elyria, to Oberlin, O.
Genevieve F. Laughlin, Chillicothe, Mo., to 12 W. 93d St., New York, N. Y.
Cara S. Richards, San Francisco, to 29 Masonic Temple, Denver, Col.
Effie E. York, Oakland, to 901 Eddy St., San Francisco, Cal.
J. B. Kinsinger, 312 W. 2d St., to 228 W. 5th St., Rushville, Ind.
Mary J. Smith, Hot Springs, Ark., to 1240 Park St., Bowling Green, Ky.
Chas. H. Gano, Washington, D. C., to 1007 Arrott Bldg., Pittsburg, Pa.
H. L. Maxwell, 846 Centre Ave., to 304 N. 5th St., Reading, Pa.
Homer Woodruff, El Paso, Tex., to Mexico City, Mexico.
G. L. Noland, 537 College St., to 212 Baker St., Springfield, Mo.
Mrs. Lou T. Noland, Carthage, to 212 Baker St., Springfield, Mo.
W. A. Atkins, Clinton, to Bloomington, Ill.

APPLICANTS FOR MEMBERSHIP IN THE A. O. A.

In accordance with a rule adopted by the Trustees the names of all applicants for membership in the A. O. A. will appear in the JOURNAL. If no valid objection to any such application is filed with the secretary within thirty days after publication, and all receive an affirmative majority vote of the Trustees, they will be declared elected. Should objection be made to any applicant the case will be fully investigated before final action is taken.

John Stephen Allison, Monrovia, Cal.
G. E. Arnold, Postoffice Bldg, Albion, Mich.
D. Arthaud, Washington, Iowa.
James S. Bach, 704 Temple Bldg., Toronto, Can.
Ernest W. Bush, Com. Nat. Bank, 14th and G Sts., Washington, D. C.
Alice B. Chaffee, 1200 W. 9th St., Los Angeles, Cal.
W. A. Cole, Tama Bldg., Burlington, Iowa.
Ralph M. Crane, 220 W. 59th St., New York, N. Y.
Sara B. Detwiler, McLean Block, Guelph, Ont.
George Betz Dresbach, 157 University Ave., Palo Alto, Cal.
Gertrude Forrest, Albia, Iowa.
Edward N. Hansen, 4514 Forbes St., Pitttsburg, Pa.
Frances A. Howe, Springville, N. Y.
G. Percy Long, 309 Shelton Ave., Jamaica, N. Y.
R. C. Malcomb, Com. Nat. Bank, 14th and G Sts., Washington, D. C.
Jennie Krepps Manuel, 1141 Turk St., San Francisco, Cal.
Elvira Mekimson, Riggsville, Ill.
Lurena Resner, Riggsville, Ill.
Edward L. Schmid, East Patrick St., Frederick, Md.
I. E. Scobee, 220 Main St., Nevada City, Cal.
Frank Pierce Smith, Caldwell Bank & Trust Co., Caldwell, Idaho.
J. Walter Skidmore, Corinth, Miss.
J. N. Walker, 214 Tama Bldg., Burlington, Ia.
Archie Robert Waters, 4th and Broadway, Chico, Cal.
E. E. Westfall, Mt. Pleasant, Iowa.
H. D. Sweet, 267 Glen St., Glens Falls, N. Y.

REINSTATEMENT.

R. B. Henderson, 48 Canada Life Bldg., Toronto, Can.
J. A. Thompson, 105 Colonial Arcade, Cleveland, O.

Tennessee Board of Examiners To Meet.

The next meeting of the Tennessee Board of Osteopathic Examiners will be held in Memphis on Friday and Saturday, February 9 and 10, 1906. For application blank and other information address

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